# Report on
# Topographic and Bathymetric Survey of Reservoirs
# for Water Resources Department, Govt. of Gujarat
# at Saurashtra and Northern Gujarat Region, Gujarat

## Bhadar - 1 Reservoir

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## ABBREVIATIONS

| | |
|---|---|
| WRD | Water Resources Department |
| BM | Benchmark |
| C.M. | Central Meridian |
| CD | Chart Datum |
| cm | Centimetre |
| ddmm.mmm | Degrees minutes. decimal minutes |
| DGPS | Differential Global Positioning System |
| DTM | Digital Terrain Model |
| DSL | Dead Storage Level |
| FRL | Full reservoir Level |
| GPS | Global Positioning System |
| HSE | Health, Safety & Environment |
| ID | Identification name/number |
| IHO | International Hydrographic Organization |
| kHz | Kilohertz |
| km | Kilometre |
| KP | Kilometre Post |
| Lat | Latitude |
| LBM | Local Benchmark |
| Long | Longitude |
| m | Metre |
| MCum | Million Cubic Meter |
| MDDL | Minimum Drawn Down Level |
| MSL | Mean Sea Level |
| MSqm | Million Square Meter |
| MV | Motor Vessel |
| NA | Not Applicable |
| NU | North Up |
| SOW | Scope of Work |
| SVP | Sound Velocity Profile |
| UTM | Universal Transverse Mercator projection |
| w.d. | Water depth |
| WGS84 | World Geodetic System 1984 |

## EXECUTIVE SUMMARY

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric surveys of thirteen reservoirs in the Saurashtra region; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aaji-1, Nara, Tappar, Rudramata, Mitti and Fatehgadh.

This report describes the results of the topographic and bathymetric survey services provided by OSaS to the WRD for topographic and bathymetric mapping of the Bhadar-1 reservoir, Saurashtra region, Gujarat.

The vessel SMB Ocean, owned by OSaS, was used for conducting the survey. The mobilisation of equipment started on 15th January 2021. A DGPS consistency check was done on 14th January through establishing two reference stations (TBMM) using RTK systems. The bathymetric and topographic survey commenced on 17th January 2021 at Bhadar-1 reservoir. Bathymetric survey was completed on 24th February 2021 and topographic survey was completed on 06th March 2021.

The survey data was processed on the site on a daily basis and reporting and charting was completed in the OSaS data processing centre in Navi-Mumbai after the survey.

All the co-ordinates in the report and charts are referenced to WGS 84 datum, UTM projection, CM 69° east, zone 42, northern hemisphere.

All bathymetric and topographic data has been reduced to M.S.L using the observed average water level of each day during the survey period.

The survey was carried out in daylight hours keeping in mind the safety of personnel and survey equipment.

Construction of the Bhadar-1 reservoir was completed in 1964. Reports of four capacity surveys were provided to us for comparison with the current survey; 1964, 1979, 2004 and 2008 (period 2001 -2003) using hydrographic and remote sensing techniques.

In the current bathymetric and topographic survey, a minimum elevation of 95.8m was observed in the southwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 117.22m is observed in the northwestern portion of the survey area.

The survey was extended till the High Flood Level (H.F.L:110.33m). Except near the survey boundary, most of the river channels are observed running from north to south and east to west, with elevation contours between 100m and 98m and covering a wide area of 99m contour within the area near the dam gates.

The comparison between 1964 and 2021 (57 years) data results in a rate of siltation (Silt Index) of 1.80 Ha.m/100sq.km./year. Annual percentage loss of gross storage capacity, live storage capacity and dead storage capacity are 0.18%, 0.08% and 1.73% respectively.

The comparison between 1964 and 1979 (15 years) data results shows a rate of siltation (Silt Index) at a rate of 13.78 Ha.m/100sq.km./year. Annual percentage loss of gross storage capacity is 1.39.

The comparison between 1979 and 2021 (42 years) data indicates a significant increase in water spread area observed from 42.25 $km^2$ to 46.96 $km^2$ at 107.89m. The corresponding increase in volume resulted in an erosion phase during this period. The rate of erosion is calculated as 2.4 Ha.m/100 sq.km./year.

The comparison of 1979, 2003, 2004 and 2021 data with respect to 1964 impounding data at 106.41m (1.49m below F.R.L) results in a silt index of 12.99, 4.31, 3.35 and 2.04 respectively at the rate of Ha.M/100 $km^2$/year.

The comparison of current capacity data to the previous capacity data of 1964 survey shows a decrease in capacity at all levels, resulting in a decrease in gross storage capacity, with a corresponding volume of sediment deposited at all levels of the reservoir.

The detailed comparison of current capacity data at different levels with the previous capacity data of the 1979 survey shows an increase in capacity within the dead storage and live storage areas except at 98.02m elevation, where sediment deposition was noticed.

The increase in capacity from 1979 to 2021 is possibly due to the further deepening of the river channel or sediment removal, possibly due to a flood or changes in the water spread area at FRL by the conversion of irregular land area into levelled cultivation fields.

The removal or deposition of the sediment within the reservoir results in a corresponding increase or loss of storage capacity.

# 1 INTRODUCTION

The Water Resources Department, Govt. of Gujarat is engaged in developing water reservoirs within the state of Gujarat, under a World Bank funding programme towards National Hydrology Projects of Govt. of India. Towards this end, the Water Resources Department, Govt. of Gujarat requires services for conducting bathymetric survey of reservoirs of Saurashtra and northern Gujarat regions under its National Hydrology Project.

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric surveys of thirteen reservoirs in the Saurashtra and northern Gujarat regions; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aaji-1, Nara, Tappar, Rudramata, Mitti and Fatehgadh.

This report describes the results of the topographic and bathymetric survey services provided by OSaS to WRD for topographic and bathymetric mapping of the Bhadar-1 reservoir in Saurashtra, Gujarat.

## 1.1 Background of survey area

Bhadar river is in the Saurashtra peninsula, in the western Indian state of Gujarat. It's flows south from its origin through Jasdan, then turns south-west and generally heads west until it empties into the Arabian sea near Porbandar. The total catchment area of the basin is 7,094 sq km. It is impounded by two reservoirs; Bhadar-1 reservoir with a capacity of 238 M.cu.m and downstream from that, Bhadar-2 reservoir with a capacity of 49 M.cu.m.

The average rainfall in the Bhadar basin is 625 mm. In winter, the temperature varies between $4^0$C and $15^0$C in different parts of the region. May is the hottest month. Maximum temperature varies between $40^0$C and $45^0$C. At present, there are 12 completed structures, either reservoirs or weirs, in Bhadar catchment.

Bhadar-1 dam was constructed in the year 1964 with a gross storage of 238$Mm^3$. It is an earthen and masonry type dam on basaltic bedrock. This dam fulfills its operating purpose of flood management and irrigation efficiently.

## 1.2 General Location

The reservoirs of Saurashtra and Northern Gujarat region are shown on the Google Earth image in **Figure 1**.

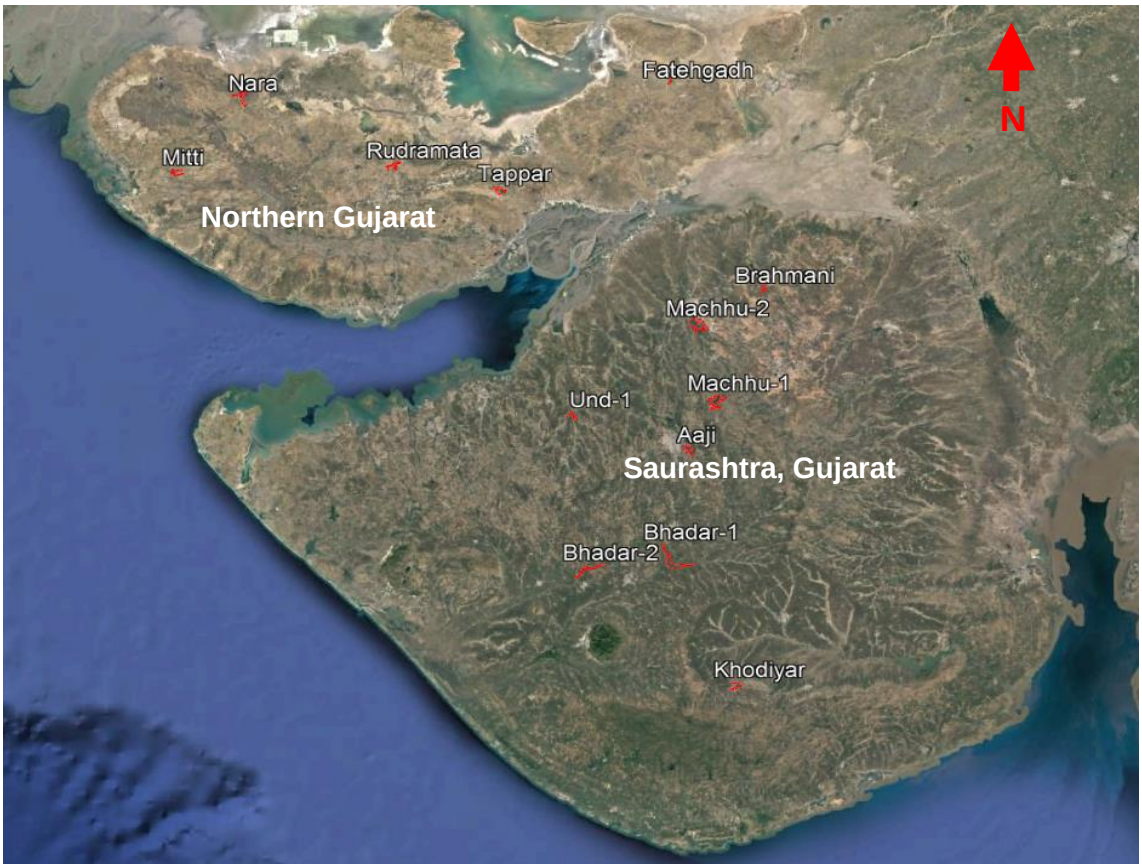



**Figure 1: Survey areas/reservoirs of Saurashtra and Northern Gujarat regions**

This report specifically focuses on the results of topographic and bathymetric survey in and around the Bhadar-1 reservoir situated within the Saurashtra region, shown in the Google earth image below:

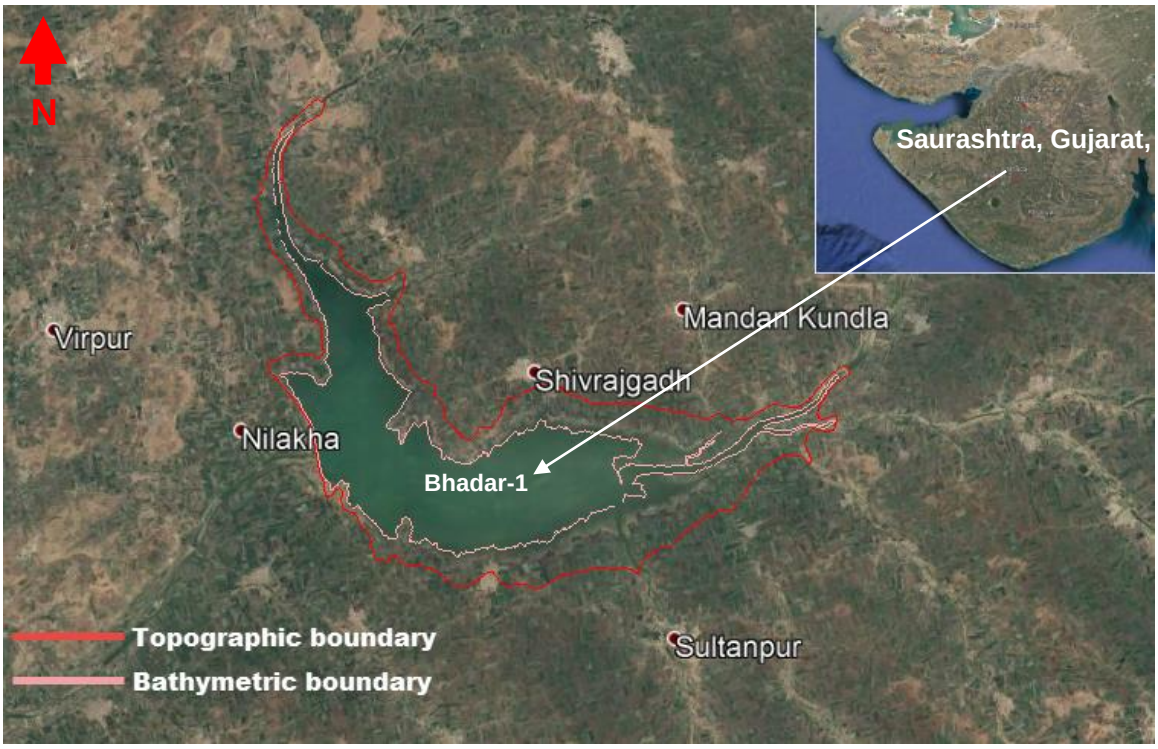



**Figure 2: Survey area – Reservoir Bhadar-1**

# 2 SCOPE OF WORK

The scope of work for the survey was:

- To mobilize requisite topographic equipment and personnel at the sites specified by the client.
- To mobilize a suitable vessel along with requisite bathymetric equipment and personnel at the sites specified by the client.
- To carry out topographic and single beam echo sounder bathymetric survey in the specified areas.
- To estimate and study the sedimentation behaviour of the reservoirs in different zones including horizontal zones throughout the reservoirs as well as vertical zones namely (a) dead storage (b) live storage (c) flood storage, if any.
- The integrated bathymetric system will be used to collect data on depth and bottom topography of the reservoirs and rivers. Primary application is reservoir sedimentation surveying; products will be reservoir capacity figures as a function of depth, depth contours and bottom topography change over time.
- To upgrade elevation-area-capacity tables /curves of the reservoirs.
- To prepare contour plan, Longitudinal profile (L-section), Cross section profiles...etc.

## 2.1 Salient Features of Survey Area

The Bhadar-1 reservoir with a capacity of 238 M.cu.m is situated across the Bhadar River in the Saurashtra peninsula, in the Western Indian state of Gujarat. This reservoir was impounded in the year 1964 and its storage is mainly for irrigation purposes. The salient features of Bhadar – 1 reservoir at the time of impounding are given below.

a. Location
   Latitude : $21^0$ - 51’ N
   Longitude : $70^0$ - 46’ E
b. Catchment Area : 2406 Sq.Km
c. Full Reservoir Level (F.R.L) : 107.90 m
d. Low Water Level (M.D.D.L/L.W.L) : 97.56 m
e. Dead Water Level (D.W.L/O.S.L) : 97.54 m
f. Gross Storage : 237.86 M.Cu.m
g. Dead Storage : 14.16 M.Cu.m
h. Live Storage : 223.70 M.Cu.m
i. Area at F.R.L : 44.00 Sq.Km

## 2.2 Survey Design

The topographic and bathymetric survey lines were planned and executed at intervals of 25m throughout the area of survey. Topographic survey was conducted using RTK base and rover system. The limit of topographic survey was up to the H.F.L of the reservoir, which is 110.33m (362.00 ft.) above MSL, as provided by the client. The bathymetric survey was conducted using RTK positioning system and single beam echo sounder.

The topographic and bathymetric surveyed areas (in sq.km) for the Bhadar-1 reservoir are provided in **Table 1** below.

| Name of Reservoir | Bathymetric area surveyed (sq. km.) | Topographic area surveyed (sq.km.) |
|---|---|---|
| Bhadar-1 | 32.7 | 26.372 |

**Table 1: Surveyed areas for Bhadar-1 reservoir**

# 3 SURVEY CONTROL

## 3.1 Geodesy

The survey operations were conducted in WGS 84 Spheroid, Universal Transverse Mercator projection system, based on the geodetic parameters as presented below. All co-ordinates given within this document are with reference to it.

| GEODETIC PARAMETERS | |
|---|---|
| **Satellite Datum** | |
| Datum, Spheroid | WGS-84 |
| Semi-Major Axis | 6378137.000 m |
| Semi Minor Axis | 6356752.314 m |
| Inverse Flattening | 298.2572 |
| **Projection Parameters** | |
| Grid Projection | Universal Transverse Mercator |
| Latitude of Origin of Projection | 0° (Equator) |
| Longitude of Origin of Projection | 69° E, Zone 42 North |
| Hemisphere | North |
| False Easting (metres) | 500000 E |
| False Northing (metres) | 0 |
| Scale Factor on CM | 0.9996 |
| Units | Metres |

**Table 2: Geodetic Parameters**

## 3.2 Horizontal and vertical Control

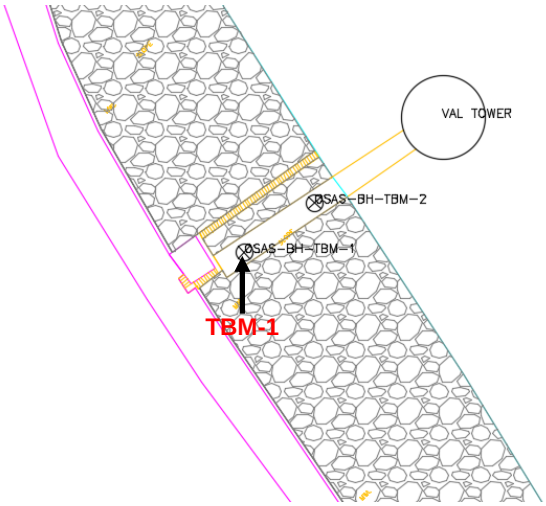
### 3.2.1 Topographic survey

Two reference stations were established as temporary control points/temporary benchmarks (TBM). The levelling of these TBMs was carried out using an auto level with respect to the known level of F.R.L which is given as 107.90m above MSL, as provided by the client. The base stations of the RTK were set up at these positions and two-hour long continuous observations were conducted using a Hemisphere RTK positioning system to fix the consistency of the position for horizontal control. The system provides real time correction signals, providing centimetre level accuracy. Additional TBMs were established at various parts of the survey area to keep the rover in range with respect to the base station.

The details of the reference stations OSaS-BH-TBM-01 and OSaS-BH-TBM-02 are given in **Figure 3** and **Figure 4**.

| | | | |
|---|---|---|---|
| **Station Number:** | OSaS-BH-TBM-01 | **Latitude:** | 21° 48' 35.984" N |
| **Locality:** | Gondal, Gujarat | **Longitude:** | 70° 46' 7.761" E |
| **Geodetic Datum:** | WGS84 | **Northing:** | 2412845.20 m N |
| **Projection:** | Universal Transverse Mercator | **Easting:** | 682842.74 m E |
| **Date:** | 17th January 2021 | **Elevation:** | 112.980m above MSL |
| **Station Description:** | A circle with text OSaS-BH-TBM-01 is drawn with yellow paint on the walkway to the Val (valve) tower. | | |
| **Access:** | Road to the top of the reservoir near the spillway. TBM is situated on the walkway to the Val (valve) tower. TBM-1 lies about 28m SW of the Val (valve) tower. | | |

**Sketch:**




**Map:**

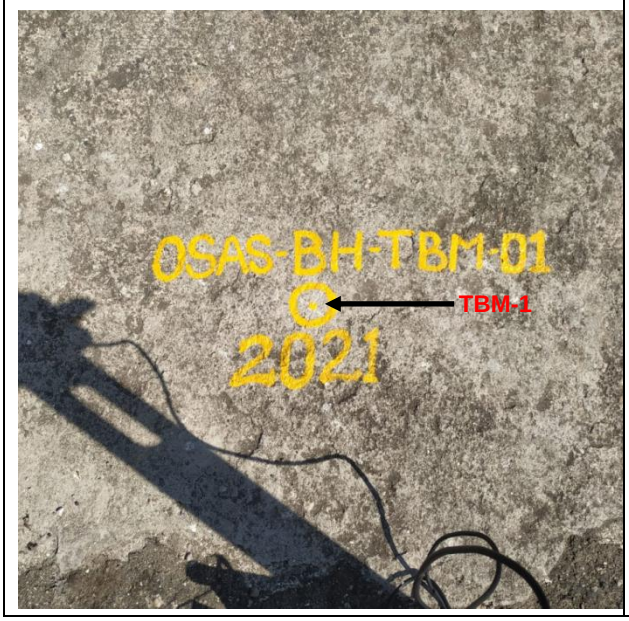
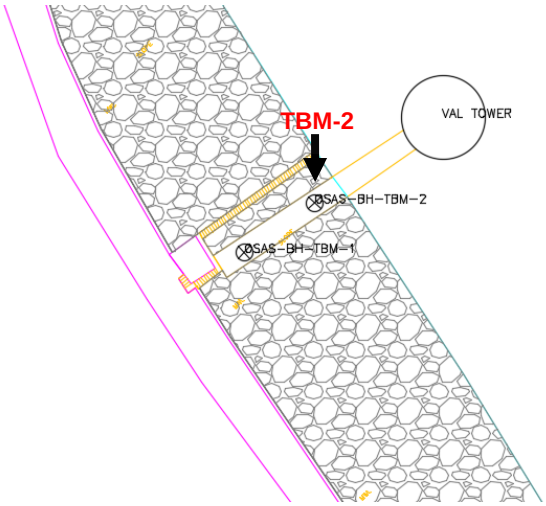





**Figure 3: Details of OSaS-BH-TBM-01**

| | | | |
|---|---|---|---|
| **Station Number:** | OSaS-BH-TBM-02 | **Latitude:** | 21° 48' 36.158"N |
| **Locality:** | Gondal, Gujarat | **Longitude:** | 70° 46' 08.048"E |
| **Geodetic Datum:** | WGS84 | **Northing:** | 2412850.62 m N |
| **Projection:** | Universal Transverse Mercator | **Easting:** | 682850.92 m E |
| **Date:** | 17th January 2021 | **Elevation:** | 113.140m above MSL |
| **Station Description:** | A circle with text OSaS-BH-TBM-02 is drawn with yellow paint on the walkway to the Val (valve) tower. | | |
| **Access:** | Road to top of the reservoir near spillway and TBM is situated on the walkway to the Val (valve) tower. TBM-2 lies about 18m SW of the Val (valve) tower. | | |

**Sketch:**




**Map:**




**Figure 4: Details of OSaS-BH-TBM-02**

Additional temporary control points were established in the field to maintain the moving rover within the range of the base reference point. The following table summarises the details of all the temporary control points (TBMs) established at the site during the survey.

| Sr. No. | Station Name | Latitude (N) | Longitude (E) | Easting (m) | Northing (m) | Elevations (m) w.r.t MSL |
|---|---|---|---|---|---|---|
| 1 | OSAS-BH-TBM-01 | 21° 48’ 35.984” | 70° 46’ 07.761” | 682842.74 | 2412845.20 | 112.980 |
| 2 | OSAS-BH-TBM-02 | 21° 48’ 36.158” | 70° 46’ 08.048” | 682850.92 | 2412850.62 | 113.140 |
| 3 | OSAS-BH-TBM-03 | 21° 49’ 55.398” | 70° 45 31.788” | 681781.69 | 2415275.83 | 114.690 |
| 4 | OSAS-BH-TBM-04 | 21° 50’ 59.546” | 70° 45’ 52.521” | 682354.47 | 2417255.59 | 118.508 |
| 5 | OSAS-BH-TBM-05 | 21° 52’ 54.576” | 70° 45’ 08.949” | 681063.08 | 2420779.14 | 116.260 |
| 6 | OSAS-BH-TBM-06 | 21° 54’ 03.861” | 70° 46’ 06.444” | 682689.00 | 2422929.02 | 112.164 |
| 7 | OSAS-BH-TBM-07 | 21° 52’ 58.182” | 70° 45’ 38.240” | 681902.63 | 2420899.68 | 119.411 |
| 8 | OSAS-BH-TBM-08 | 21° 52’ 19.342” | 70° 46’ 00.474” | 682554.62 | 2419712.43 | 117.464 |
| 9 | OSAS-BH-TBM-09 | 21° 51’ 00.411” | 70° 47’ 04.926” | 684433.09 | 2417306.14 | 116.941 |
| 10 | OSAS-BH-TBM-10 | 21° 50’ 20.053” | 70° 47’ 24.739” | 685016.41 | 2416071.50 | 115.942 |
| 11 | OSAS-BH-TBM-11 | 21° 49’ 35.886” | 70° 47’ 40.988” | 685498.83 | 2414718.51 | 113.125 |
| 12 | OSAS-BH-TBM-12 | 21° 49’ 08.421” | 70° 48’ 16.437” | 686526.73 | 2413885.66 | 113.504 |
| 13 | OSAS-BH-TBM-13 | 21° 49’ 17.689” | 70° 49’ 00.814” | 687797.83 | 2414185.70 | 111.451 |
| 14 | OSAS-BH-TBM-13A | 21° 49 55.325” | 70° 49’ 42.115” | 688970.20 | 2415357.30 | 114.371 |
| 15 | OSAS-BH-TBM-13B | 21° 49’ 55.914” | 70° 49’ 41.909” | 688964.07 | 2415375.33 | 114.931 |
| 16 | OSAS-BH-TBM-15 | 21° 49’ 29.995” | 70° 50’ 22.386” | 690135.97 | 2414592.00 | 112.971 |
| 17 | OSAS-BH-TBM-16 | 21 49’ 32.483” | 70° 51’ 23.147” | 691879.99 | 2414689.43 | 113.613 |
| 18 | OSAS-BH-TBM-17 | 21° 49’ 13.873” | 70° 52’ 05.423” | 693101.04 | 2414131.71 | 113.713 |
| 19 | OSAS-BH-TBM-18 | 21° 49’ 12.468” | 70° 52’ 49.758” | 694374.84 | 2414103.99 | 114.165 |
| 20 | OSAS-BH-TBM-19 | 21° 49’ 38.553” | 70° 53’ 49.926” | 696092.98 | 2414927.48 | 117.887 |
| 21 | OSAS-BH-TBM-20 | 21° 48’ 49.574” | 70° 53’ 50.990” | 696142.09 | 2413421.38 | 115.110 |
| 22 | OSAS-BH-TBM-2A | 21° 47’ 33.273” | 70° 47’ 17.153” | 684858.08 | 2410939.41 | 113.515 |
| 23 | OSAS-BH-TBM-2B | 21° 47’ 13.896” | 70° 48’ 12.770” | 686462.61 | 2410362.04 | 112.682 |
| 24 | OSAS-BH-TBM-2C | 21° 47’ 06.300” | 70° 48’ 39.532 | 687234.08 | 2410137.43 | 115.206 |
| 25 | OSAS-BH-TBM-2D | 21° 47’ 06.207” | 70° 49’ 13.442” | 688208.22 | 2410146.02 | 113.773 |
| 26 | OSAS-BH-TBM-2E | 21° 47’ 02.235” | 70° 49’ 51.111” | 689291.75 | 2410036.66 | 115.576 |
| 27 | OSAS-BH-TBM-2F | 21° 47’ 10.837” | 70° 50’ 20.620” | 690136.30 | 2410311.30 | 115.034 |
| 28 | OSAS-BH-TBM-2G | 21° 47’ 21.619” | 70° 50’ 52.684” | 691053.40 | 2410653.94 | 113.533 |
| 29 | OSAS-BH-TBM-2H | 21° 47’ 20.306” | 70° 51’ 18.528” | 691796.26 | 2410622.45 | 116.111 |
| 30 | OSAS-BH-TBM-2I | 21° 47’ 56.591” | 70° 51’ 49.480” | 692671.89 | 2411749.21 | 112.537 |
| 31 | OSAS-BH-TBM-2J | 21° 47’ 58.714” | 70° 52’ 16.720” | 693453.53 | 2411823.98 | 115.445 |
| 32 | OSAS-BH-TBM-2K | 21° 48’ 52.087” | 70° 52’ 46.683” | 694294.19 | 2413476.04 | 112.944 |
| 33 | OSAS-BH-TBM-A | 21° 49’ 07.802” | 70° 52’ 42.159” | 694158.37 | 2413957.83 | 109.260 |
| 34 | OSAS-BH-TBM-B | 21° 48’ 54.574” | 70° 52’ 24.099” | 693644.63 | 2413544.64 | 112.033 |

**Table 3: Details of TBMs**

### 3.2.2 Bathymetric survey

The same two reference stations, established as temporary control points/temporary benchmark (TBM) for topographic survey were also used as the base stations for RTK positioning during the bathymetric survey. The rover fixed in the survey boat can receive calculated X Y Z of its position at any point with centimeter level accuracy with respect to the known base positions. The details of these reference stations are given in **Figure 3** and **Figure 4**

The water level of the reservoir with respect to the known value of F.R.L (107.90 above MSL) was measured twice a day during the survey. The mean value of these two readings was taken as the datum for the day's work. The depths recorded by the echo sounder were deducted from these levels to obtain the bed levels with respect to M.S.L. The observed water levels are given in **Table 4.**

| Date | Water level | | | | |
|---|---|---|---|---|---|
| | Start | | End | | Average level in metres (MSL) |
| | Time (AM) | Level (MSL) | Time (PM) | Level (MSL) | |
| 17-01-21 | 9:00 | 106.950 | 5:00 | 106.940 | 106.945 |
| 18-01-21 | 9:00 | 106.923 | 5:00 | 106.908 | 106.916 |
| 19-01-21 | 9:00 | 106.893 | 5:00 | 106.881 | 106.887 |
| 20-01-21 | 9:00 | 106.868 | 5:00 | 106.859 | 106.864 |
| 21-01-21 | 9:00 | 106.845 | 5:00 | 106.837 | 106.841 |
| 22-01-21 | 9:00 | 106.823 | 5:00 | 106.814 | 106.819 |
| 23-01-21 | 9:00 | 106.802 | 5:00 | 106.794 | 106.798 |
| 24-01-21 | 9:00 | 106.779 | 5:00 | 106.769 | 106.774 |
| 25-01-21 | 9:00 | 106.753 | 5:00 | 106.743 | 106.748 |
| 26-01-21 | 9:00 | 106.722 | 5:00 | 106.711 | 106.717 |
| 27-01-21 | 9:00 | 106.694 | 5:00 | 106.680 | 106.687 |
| 28-01-21 | 9:00 | 106.663 | 5:00 | 106.648 | 106.656 |
| 29-01-21 | 9:00 | 106.634 | 5:00 | 106.619 | 106.627 |
| 30-01-21 | 9:00 | 106.600 | 5:00 | 106.589 | 106.595 |
| 31-01-21 | 9:00 | 106.574 | 5:00 | 106.562 | 106.568 |
| 01-02-21 | 9:00 | 106.544 | 5:00 | 106.533 | 106.539 |
| 02-02-21 | 9:00 | 106.517 | 5:00 | 106.505 | 106.511 |
| 03-02-21 | 9:00 | 106.489 | 5:00 | 106.480 | 106.485 |
| 04-02-21 | 9:00 | 106.466 | 5:00 | 106.456 | 106.461 |
| 05-02-21 | 9:00 | 106.441 | 5:00 | 106.429 | 106.435 |
| 06-02-21 | 9:00 | 106.410 | 5:00 | 106.393 | 106.402 |
| 07-02-21 | 9:00 | 106.379 | 5:00 | 106.365 | 106.372 |
| 08-02-21 | 9:00 | 106.348 | 5:00 | 106.336 | 106.342 |

| Date | Water level | | | | |
|---|---|---|---|---|---|
| | Start | | End | | Average level in metres (MSL) |
| | Time (AM) | Level (MSL) | Time (PM) | Level (MSL) | |
| 09-02-21 | 9:00 | 106.320 | 5:00 | 106.308 | 106.314 |
| 10-02-21 | 9:00 | 106.290 | 5:00 | 106.277 | 106.284 |
| 11-02-21 | 9:00 | 106.261 | 5:00 | 106.252 | 106.257 |
| 12-02-21 | 9:00 | 106.239 | 5:00 | 106.226 | 106.233 |
| 13-02-21 | 9:00 | 106.211 | 5:00 | 106.197 | 106.204 |
| 14-02-21 | 9:00 | 106.173 | 5:00 | 106.157 | 106.165 |
| 15-02-21 | 9:00 | 106.143 | 5:00 | 106.128 | 106.136 |
| 16-02-21 | 9:00 | 106.111 | 5:00 | 106.101 | 106.106 |
| 17-02-21 | 9:00 | 106.084 | 5:00 | 106.075 | 106.080 |
| 18-02-21 | 9:00 | 106.061 | 5:00 | 106.044 | 106.053 |
| 19-02-21 | 9:00 | 106.029 | 5:00 | 106.012 | 106.021 |
| 20-02-21 | 9:00 | 105.993 | 5:00 | 105.979 | 105.986 |
| 21-02-21 | 9:00 | 105.958 | 5:00 | 105.945 | 105.952 |
| 22-02-21 | 9:00 | 105.924 | 5:00 | 105.910 | 105.917 |
| 23-02-21 | 9:00 | 105.891 | 5:00 | 105.878 | 105.885 |
| 24-02-21 | 9:00 | 105.864 | 5:00 | 105.850 | 105.857 |

**Table 4: Observed Water Levels**

## 3.3 Survey Vessel

A company owned boat, SMB Ocean, was utilised for conducting the survey operations.


**Figure 5: Survey vessel – SMB Ocean**

# 4 PERSONNEL

The following survey personnel were involved during the survey period.

| Name | Designation | Duration |
|---|---|---|
| Santokh Chand | Project Manager | Project Duration (In Navi-Mumbai office) |
| Sunil Kumar Yadav | Party Chief / Surveyor | 13th January - 09th February 2021 |
| Salman | Surveyor | 13th January - 31st January 2021 |
| Amit Bhardwaj | Surveyor | 13th January - 08th February 2021 |
| Binu Kumar | Surveyor | 24th January - 08th February 2021 |
| Gaurav Sharma | Party Chief / Survey Engineer | 13th January - 08th February 2021 |
| Samson Chacko | Processor | 13th January - 08th February 2021 |
| Usha Kadam/ Santosh Wakankar | CAD Processor | Project duration (data processing in office) |
| Hiraan Joshi | Client Representative | Project duration |

**Table 5: Survey Personnel**

# 5 SURVEY EQUIPMENT DETAILS

## 5.1 General

The equipment used for the survey is described below.

*Bathymetry:*

Hemisphere GPS S320 GNSS RTK Base and Rover system with accessories

Odom MK III dual frequency single beam echo sounder system with accessories

TSS HS50 heave sensor

Hypack navigation system

2 x computers with associated accessories

*Topography:*

Hemisphere GPS S320 GNSS RTK Base and Rover system with accessories

Geomax Auto Level with accessories.

Adequate spares and back-ups for critical items will be carried on board the survey vessel to ensure that failure of any hardware unit does not adversely affect progress of field work.

## 5.2 RTK Positioning and Navigation

An RTK system was mobilised at the site to carry out the topographic and bathymetric survey. The system comprises the following:

- Hemisphere GPS R320 GNSS base station
- Hemisphere GPS R320 rover

The base station of the RTK was set up at the temporary benchmark. Real Time Kinematic (RTK) is a technique used to increase the accuracy of GPS signals by using a fixed base station which wirelessly sends out corrections to a moving receiver. By utilising these corrections, the GPS engine can fix the position of the antenna to within 1 - 2cm. GPS Real-Time Kinematic (RTK) operation provides centimetre-level accuracy by eliminating errors that are present in the GPS system. For obtaining corrected positions, a rover receiver and a source of corrections from a base station were used.

Vessel positioning was carried out by the RTK DGPS system and its heading determined by the course made good method (CMG). The positioning system was interfaced to the Hypack navigation software. Vessel track and offset positions were recorded digitally in the navigation software. DGPS positioning accuracy of the moving vessel was better than ±1m.

The vessel's computed position from the DGPS receiver was interfaced to the navigation computer system. Hypack navigation and data acquisition software was used to provide track guidance information for the survey crew and also output the vessel position to assist the helmsman in maintaining the selected track guidance line. The VDU displays the selected survey line, the vessel position in relation to that line and numerical data to assist the helmsman such as the along-line and off-line distances, vessel speed and course made good, gyro heading, distance and bearing to end of line and water depth. The position of each fix, together with other information such as fix numbers, depths, and down line distances were logged to the hard drive.

Sensor offsets on the survey vessel were accurately measured during mobilisation and are included in the mobilisation report.

## 5.3 Single Beam Echo Sounder System

Bathymetry data was acquired using a dual frequency 33/200 kHz Echotrac DF 3200 MK III single beam echo sounder. The SBES transducer assembly was side-mounted on a pole on the port side of the boat. A hard copy (paper) record was produced in real-time, annotated with line name, fix number, time and date. The digital output was logged by the navigation computer for post-processing.

Calibration

The echo sounder was calibrated at the survey location by conducting a bar-check. The bar-check is carried out by lowering a horizontal steel plate to known, fixed depths below the water surface directly below the echo sounder transducer. Acoustic reflections from the plate at different depths are then recorded and adjustments made to the settings for sound velocity and draft to get accurate results. A bar-check was carried out before commencing the survey and the average speed of sound obtained was entered into the unit.

## 5.4 Heave Sensor

A TSS HS-50 heave sensor was fixed to the side-mount pole above the SBES. Its output was given to the SBES unit.

## 5.5 Auto Level Geomax

A Geomax Auto Level was used to transfer the benchmark provided by the client to a local benchmark for easy installation of the ATG at Birla Copper Jetty. It was used to level this local benchmark which was fixed at a depth of 14.96m above CD.

## 5.6 Real Time Kinematic (RTK) For Topographic Survey

A Hemisphere R320 GNSS RTK system with base station and rover was used to conduct the survey. Base stations were established with respect to F.R.L at the TBM and rover used to fix the positions. This is a positioning system which can measure and calculate the X Y Z of any given point with centimeter level accuracy with respect to the known base positions. An AutoCAD drawing can be generated with the help of the XYZ values obtained from this equipment.

## 5.7 HyPack Software

Navigation data was processed using the Hypack navigation software. Single beam data from the Echotrac DF 3200 MK III echo sounder was also processed using the Hypack software. Hypack provides all of the tools necessary to complete the hydrographic survey requirements. It provides a tool to design a survey, collect data, apply corrections to soundings, remove outliers, plot field sheets, export data to CAD, compute volume quantities, generate contours, create side scan mosaics and create/modify electronic charts.

# 6 DATA PROCESSING AND INTERPRETATION

This section explains the established terminology and standards for the project and how they were applied to the survey data.

## 6.1 Navigation Data

Raw DGPS and gyro data were processed and merged to form an edited vessel track file. The final navigation data was reviewed in AutoCAD to confirm the validity of the vessel's position and to aid in the correlation between navigation data and chart location.

The survey track plots were then used for data interpretation and generation of the survey charts.

## 6.2 Bathymetric Data

Single beam data from the Echotrac DF 3200 MK III echo sounder was processed using the Hypack navigation package. The vertical datum for all bathymetric measurements was the known MSL value of F.R.L. The depth soundings obtained from the single beam echo sounder were reduced to MSL with the help of the observed water level in the reservoir.

Recorded depth data was adjusted for transducer draft and changes in water mass acoustic velocity as measured during the bar-check.

**Lakebed Gradient Classification**

The following terms were used to describe the lakebed gradients.

| CLASSIFICATION | GRADIENT (in terms of Degrees and Slope Interval) | |
|---|---|---|
| Very Gentle | <1° | < 1 in 57 |
| Gentle | 1° – 4.9° | 1 in 57 to 1 in 11.7 |
| Moderate | 5° – 9.9° | 1 in 11.7 to 1 in 5.7 |
| Steep | 10° – 14.9° | 1 in 5.7 to 1 in 3.7 |
| Very Steep | >15° | > 1 in 3.7 |

**Table 6: Classification of gradients**

Gradients documented in the report should be taken as an indication of general slopes for the area. The localised gradients, particularly near features such as depressions or trenches may occasionally be steeper.

Following the data processing and interpretation phase, the charts were prepared at the OSaS data processing centre, in Navi Mumbai. A team comprising a bathymetry data processor, CAD processor and geophysicist prepared the report and accompanying charts to WRD's specifications.

## 6.3 Topographic Data

A Hemisphere R320 GNSS RTK system with base station and rover was used to conduct the survey. This is a positioning system which can measure and calculate the X Y Z of any given point with centimeter level accuracy with respect to the known base positions. The data is downloaded from the controller system, processed in the OSaS Data Processing Centre in Navi Mumbai and formatted to a compatible ASCII format for plotting in AutoCAD.

## 6.4 Charting

The results of the survey conducted during January to March 2021 are presented in twenty-eight charts. The chart details are given after the List of Tables in the beginning of this report.

# 7 SURVEY RESULTS

## 7.1 Survey Area

The elevations mentioned in this report and associated charts have been reduced to Mean Sea Level (M.S.L) using the observed average water level of the Bhadar 1 reservoir for the corresponding survey day. So all the bathymetric and topographic values mentioned in this report are with respect to M.S.L

The M.S.L-reduced bathymetric and topographic data are plotted in 1:5000 scale in a 25m X 25m grid. A total of five charts were created for the purpose of plotting bathymetric and topographic data. For more details refer to **Charting**

The RTK positioning accuracy is metric, resulting in a similar positioning accuracy of single beam echo sounder data since the sensor was side mounted on the vessel.

The following observations are obtained after the processing and interpretation of all the bathymetric and topographic data acquired during the entire period of survey.

A minimum elevation of 95.8m was observed in the southwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 117.22m is observed in the northwestern portion of the survey area.

Within the survey area, two major rivers and a few small rivers bring water to the dam area. One major river flows from the north to south and another major river flows from east to west. The average elevation change within the bathymetric area is between 95.83m and 106.96m. Within the bathymetric area, two islands were observed in the southwestern portion and one exposed bridge was observed in the eastern portion.

The processed topographic data shows the land is sloping from all the sides of the survey area towards the dam area. The average elevation change within the topographic area is between 95.83m and 106.96m. Features like temples, ponds, houses, and crematorium were observed within the topographic survey area.

Most of the outer survey area is observed around the 110m elevation contour. In the northwestern portion of the survey area, the elevation slopes from both sides to the central river area with a change in elevation contours from 110m to 98m. The morphology shows a further slope towards the dam gate area in the southwestern portion of the survey area. Irregular topography was observed in the extreme western portion of the survey area.

The central portion of the survey area exhibits a very gentle slope towards the central portion of the dam area from the sides. Moderately irregular bed levels are observed in the central portion of the dam especially south of the dam gates.

The extreme eastern portion of the survey area shows sudden changes from 111m to 103m in elevation contours from both the sides towards the river. Further toward the west the survey area widens and the slope is gentle towards the centre from sides and shows a change in elevation contours between 110m and 98m.

Except near the survey boundary, most of the area of river channels, from north to south and east to west exhibit elevation contours between 100m and 98m, covering a wider area than the 99m contour within the reservoir near to the dam wall

Bathymetric and topographic survey was restricted at some places due to the presence of bushes, ponds, small streams with unsafe and inaccessible marshy ground, exposed rocks in the river and very irregular rock quarries.

The following **Figure 6** shows a 2-dimensional image of the Bhadar 1 reservoir area using the gridded bathymetric and topographic data.

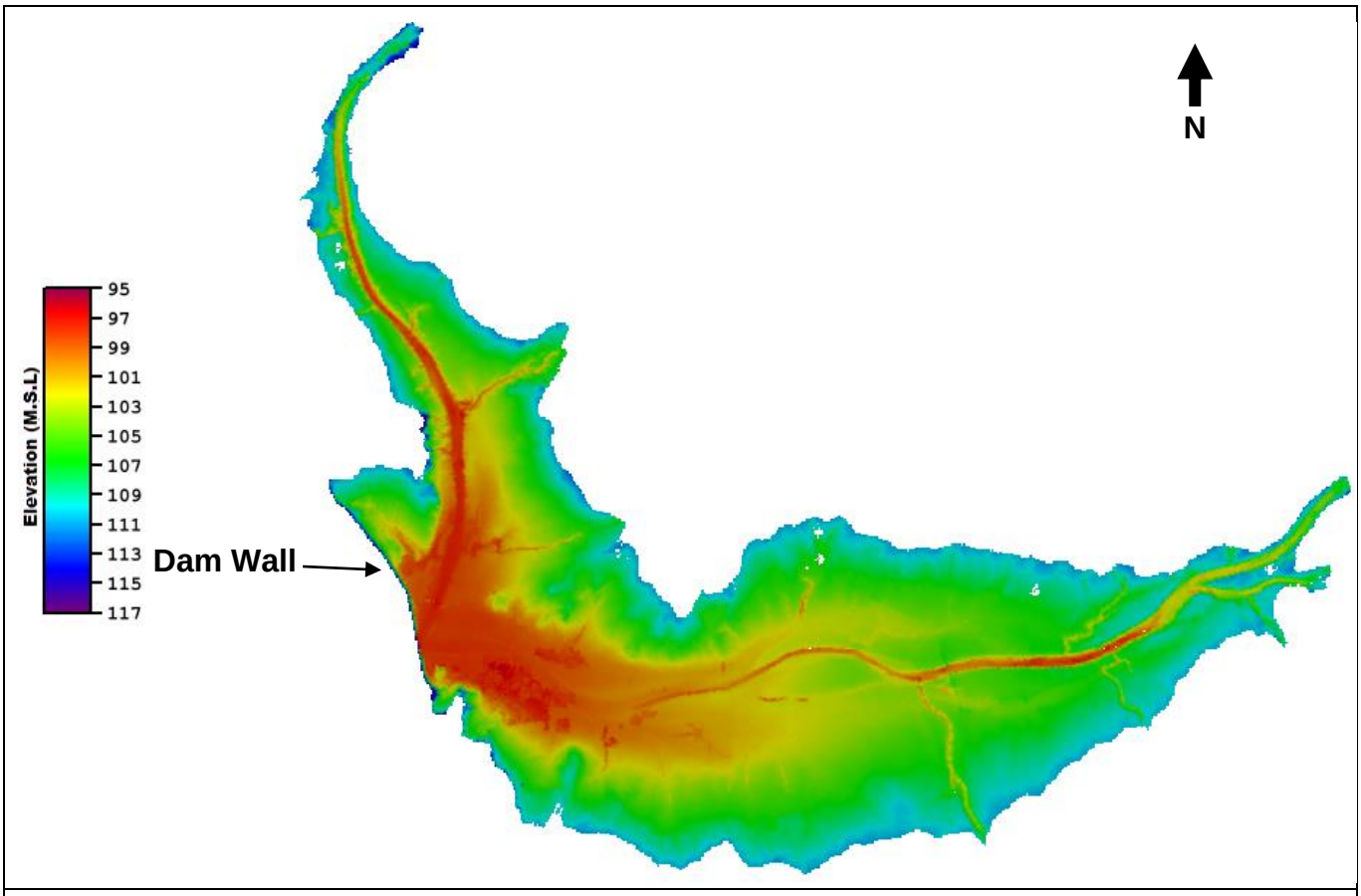



**Figure 6: 2D image of the Bhadar 1 reservoir area**

## 7.2 Longitudinal Profile

A longitudinal profile of the reservoir was prepared from the line created by connecting the lowest bed level for each survey line. This longitudinal profile is provided in two charts. For more details refer to the charts listed in the section on **Charting**.

## 7.3 Cross Section Profiles

Cross section profiles consist of the bed levels along the survey lines at 100m intervals. The cross section profiles will also be provided in a Compact Disk/USB as per the instructions mentioned for deliverables. For more details refer to the charts listed in the section on **Charting**.

# 8 CAPACITY SURVEY RESULTS

## 8.1 General

It is natural for lakes and reservoirs to trap a major part of the sediment brought into them by the streams in the catchment. Sedimentation of reservoirs is therefore a natural process resulting from the geologic and geo-morphologic processes of water borne erosion.

Sedimentation of reservoirs leads to a gradual loss of their storage capacities available for regulation of supplies. Apart from this, it can cause operational problems created by the entry of large volumes of sediments in the canals or in the turbines, as also due to jamming of hydraulic gates. Reservoir sedimentation can also cause ecological problems due to turbidity, and due to gradual delta formation at the upstream end of the reservoirs. Therefore, sedimentation of reservoirs is a matter of vital concern in all water resources development projects.

The two dominant factors which influence the rate of silting in any storage reservoir are: (i) the relationship of capacity to inflow and (ii) the content of sediment in the inflow. The other factors that modify the long-term loss of storage capacities are (a) the trap efficiency of the reservoir, (b) the character of the sediment, and (c) the method of reservoir operation. Basically, these three factors mentioned are modifiers and do not usually have a major effect as compared to the capacity-inflow ratio and the sediment content in the inflow.

It is generally recommended to carry out capacity survey of reservoirs periodically so that the quantity of sedimentation taking place can be assessed and timely remedial measures taken. This also serves as a guide for proper sedimentation planning of future reservoirs to ensure that the reservoir sedimentation does not cause unexpected problems in the useful operation of the reservoir.

The capacity surveys in general, show that the observed rate of sedimentation is higher than the rate of sedimentation adopted in the original designs. However, it is observed that the rate of sedimentation decreases with the passage of time and the useful life of the reservoir may not get unduly reduced in most cases.

## 8.2 Effect of Sedimentation in Planning of Reservoirs

It is important to note that storage reservoirs built across rivers and streams lose their capacity on account of deposition of sediment. This deposition, which takes place progressively in time, reduces the active capacity of the reservoir to provide the outputs of water through the passage of time. Accumulation of sediment at or near the dam may interfere with the future functioning of water intakes and hence affects decisions regarding location and height of various outlets. It may also result in greater flow of water into canals / water conveyance systems drawing water from the reservoir. Problems of rise in flood levels in the head reaches and unsightly deposition of sediment from a recreation point of view may also crop up in the course of time.

In this regard, the Bureau of Indian Standards code IS: 12182 - 1987 “Guidelines for determination of effects of sedimentation in planning and performance of reservoir” is an important document which discusses some of the aspects of sedimentation that have to be considered while planning reservoirs. Some of the important points from the code are as follows:

While planning a reservoir, the degree of seriousness and the effect of sedimentation at the proposed location have to be judged from studies, which normally consist of a combination of:

1. Performance Assessment (Simulation) Studies with varying rate of sedimentation.
2. Likely effects of sedimentation at the dam face.

In special cases, where the effects of sedimentation on backwater levels are likely to be significant, backwater studies would be useful to understand the size of river water levels. The steps to be followed

for performance assessment studies with varying rates of sedimentation are as follows:

a. Estimation of annual sediment yields into the reservoir or the average annual sediment yield and of trap efficiency expected.

b. Distribution of sediment within the reservoir to obtain a sediment elevation and capacity curve at any appropriate time.

## 8.3 EARLIER CAPACITY SURVEY

### 8.3.1 Capacity survey of 1964

The construction of the Bhadar-1 reservoir was completed in 1964. The following information was extracted from the following document provided by the client.

*Document*: Reservoir Capacity Survey through Remote Sensing Technique of Bhadar (S) reservoir, dated June 2008.

a. Location
   Latitude : $21^0$ - 51' N
   Longitude : $70^0$ - 46' E

b. Catchment Area : 2406 Sq.Km

c. Full Reservoir Level (F.R.L) : 107.90 m

d. Low Water Level (M.D.D.L/L.W.L) : 97.56 m

e. Dead Water Level (D.W.L/O.S.L) : 97.54

f. Gross Storage : 237.86 M.Cu.m

g. Dead Storage : 14.16 M.Cu.m

h. Live Storage : 223.70 M.Cu.m

i. Area at F.R.L : 44.00 Sq.Km

### 8.3.2 Capacity survey of 1979

As per the document provided by the client and the information available in the website of Narmada, Water Resources, Water Supply and Kalpsar Department, Gujarat, a capacity survey had been completed in 1979. The data was provided for intervals of 0.01m and the given report documented the F.R.L at 107.89m instead of an actual figure at 107.90m. For the ease of further calculations and preparation of Elevation-Area-capacity curve, the data has been extracted at regular intervals of approximately 0.5m. **Table 7** shows the Elevation-Area-capacity of 1979 data at these intervals.

### 8.3.3 Capacity survey of 2021

The water spread area and its corresponding capacity has been calculated from the acquired bathymetry and topographic data. Hypack software's TIN (Triangulated Irregular Network) MODEL package was used to calculate the Area and Capacity of the Bhadar-1 reservoir at intervals of 0.01m with respect to the corresponding elevation above MSL. Within the survey area a few places were not accessible to the survey personnel due to the existing marshy streams, ponds, houses and rock quarries. However, these areas were taken into account while calculating the water spread area by assigning interpolated values with respect to the acquired values around the restricted areas. The detailed Elevation-Area-Capacity data at 0.01m is available in **Annexure 1**. The F.R.L is considered at 107.90m according to the information from the impounding reservoir data. For ease of further calculations and preparation of Elevation-Area-capacity curve, the data has been selected at regular intervals of approximately 0.5m. **Table 7** shows the Elevation-Area-capacity of 2021 data at these intervals.

## 8.4 ELEVATION-AREA-CAPACITY CURVES

One of the most important physical characteristics of dams and their reservoirs are Elevation-Area-Capacity curves. These curves are important for defining the storage capacity of the reservoir and thereby can be used in reservoir operation, reservoir flood routing, determination of capacity and water spread corresponding to each elevation. Limited data is available regarding the capacity survey conducted in 1964, whereas data is available at intervals of 0.01m from the capacity survey conducted in 1979 and 2021. For ease of further calculations and preparation of Elevation-Area-capacity curve, the data has been selected at regular intervals of approximately 0.5m. The following **Table 7** shows the comparative statement of data between 1979 and 2021 at intervals of approximately 0.5m.

| Elevation (Above MSL, m) | As per 1979 survey | | As per 2021 survey | | Remarks |
|---|---|---|---|---|---|
| | Gross Capacity (M.Cu.m) | Area (M.Sq.m or Sq.Km) | Gross Capacity (M.Cu.m) | Area (M.Sq.m or Sq.Km) | |
| 97.54 (D.S.L) | 0.226 | 0.743 | 0.237 | 0.705 | D.S.L |
| 98.02 | 1.103 | 1.635 | 0.873 | 2.177 | |
| 98.51 | 2.365 | 2.565 | 2.404 | 3.932 | |
| 99.02 | 4.058 | 3.829 | 4.768 | 5.324 | |
| 99.52 | 6.438 | 4.926 | 7.720 | 6.519 | |
| 100.00 | 9.452 | 6.134 | 11.179 | 7.940 | |
| 100.52 | 12.496 | 7.528 | 15.719 | 9.516 | |
| 101.01 | 16.164 | 9.368 | 20.779 | 11.149 | |
| 101.50 | 21.253 | 11.059 | 26.632 | 12.753 | |
| 102.02 | 28.226 | 13.048 | 33.839 | 14.985 | |
| 102.50 | 34.489 | 15.037 | 41.518 | 17.091 | |
| 103.02 | 41.912 | 17.472 | 51.084 | 19.718 | |
| 103.51 | 51.432 | 19.460 | 61.382 | 22.267 | |
| 104.00 | 62.701 | 21.635 | 72.955 | 24.923 | |
| 104.51 | 73.848 | 24.089 | 86.302 | 27.434 | |
| 105.00 | 86.201 | 26.534 | 100.363 | 30.030 | |
| 105.52 | 101.732 | 29.110 | 116.775 | 33.225 | |
| 106.01 | 116.516 | 31.790 | 133.829 | 36.415 | |
| 106.50 | 133.009 | 34.390 | 152.483 | 39.661 | |
| 107.01 | 149.771 | 37.510 | 173.419 | 42.408 | |
| 107.50 | 170.906 | 39.960 | 194.809 | 44.868 | |
| 107.89 | 188.138 | 42.250 | 212.703 | 46.957 | |
| 107.90 | - | - | 213.172 | 47.013 | F.R.L |

**Table 7: Comparative statement of Bhadar-1 reservoir**

The above data were used for the preparation of Elevation-Area-Capacity curves. The following figure shows the Elevation-Area-Capacity curves of 2021 superimposed on the 1979 Elevation-Area-Capacity curves.

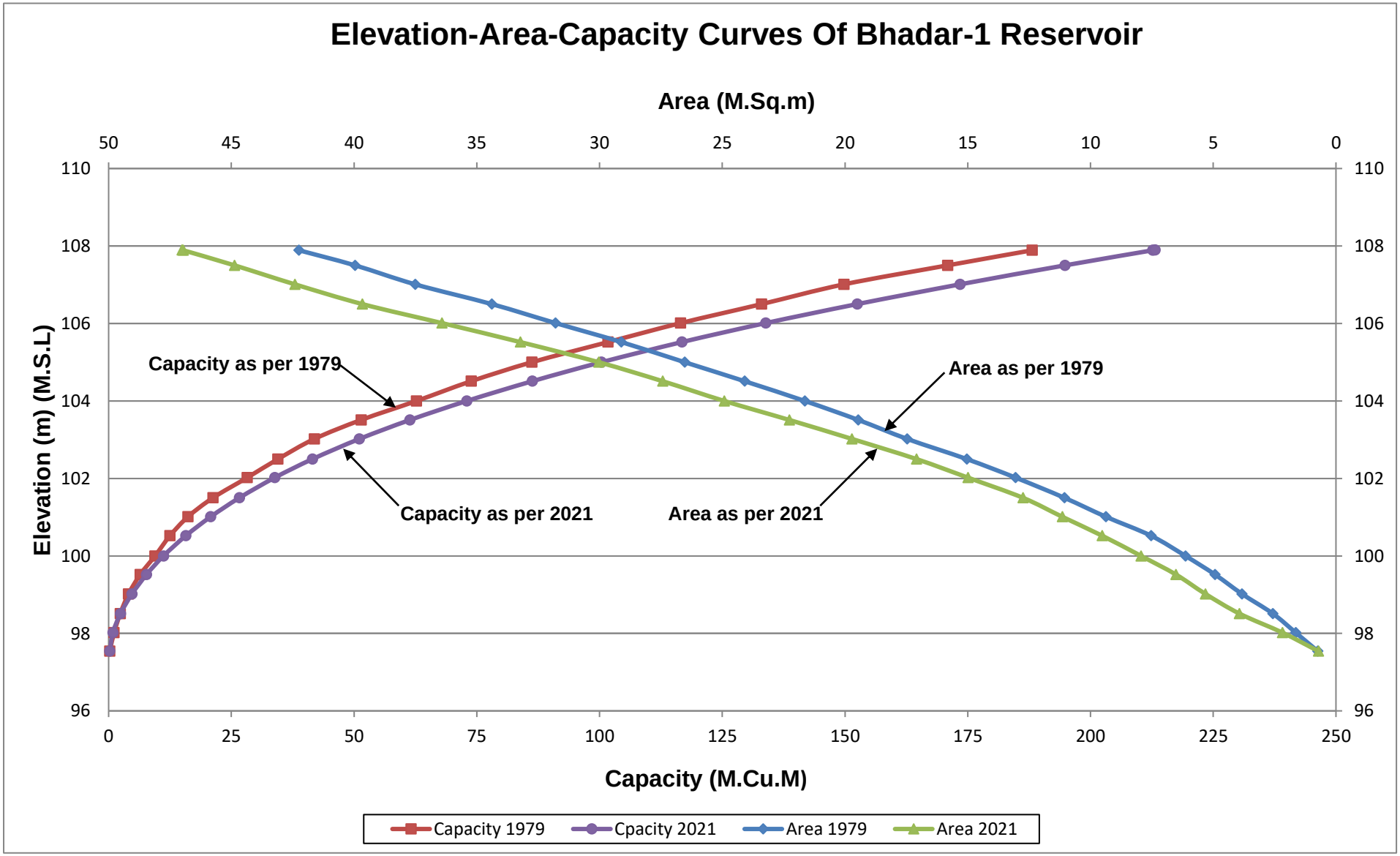



**Figure 7: Elevation-Area-Capacity Curves**

## 8.5 DATA COMPARISON BETWEEN 1964 AND 2021

***Definitions***

**Full Reservoir Level:** Denoted by F.R.L this level corresponds to the storage which includes both inactive and active storage and also the flood storage, it is the highest reservoir level that can be maintained without spillway discharge.

**Minimum Drawdown Level (M.D.D.L):** This is the level below which the water from the reservoir will not be drawn down to maintain a minimum head required in power projects.

**Maximum Water Level (MWL*)*:** This is the water level that is likely to be attained during the passage of the design flood. This level is also called the highest reservoir level or the highest flood level**.**

**Live storage:** This is the volume of water actually available at any time between the Dead Storage Level and the Full Reservoir Level.

**Dead Storage Level (D.S.L**): This is the level below which there are no outlets to drain the water in the reservoir by gravity.

**Dead storage:** This is the total storage below the invert level of the lowest discharge outlet from the reservoir. It may be available to contain sedimentation, provided the sediment does not adversely affect the lowest discharge.

### 8.5.1 Rate of siltation

| | |
|---|---|
| Capacity at F.R.L (107.90m) as per pre-impoundment survey 1964 | = 237.86 M.Cu.m |
| Capacity at F.R.L as per 2021 survey | = 213.172 M.Cu.m |
| Silting in 57 years (1964-2021) | = 237.86 – 213.172<br>= 24.688 M.Cu.m |
| Annual Siltation | = 24.688/57= 0.433 M.Cu.m/yr |
| Rate of Siltation (Silt Index) | = (0.433/2406) x 1000<br>= 0.18 Th.Cu.m/sq.km/year<br><br>= **1.80** Ha.m/100sq.km./year |

### 8.5.2 Loss of gross storage capacity at F.R.L

| | |
|---|---|
| Capacity at F.R.L (107.90) as per pre-impoundment survey 1964 | = 237.86 M.Cu.m |
| Capacity at F.R.L as per 2021 survey | = 213.172 M.Cu.m |
| Loss of storage in 57 years (1964-2021) | = 237.86 – 213.172<br>= 24.688 M.Cu.m |
| Percentage loss of Gross storage at F.R.L in 57 years | = (24.688/237.86) x 100<br>= 10.38% |
| Annual percentage loss | = 10.38/57<br>= **0.18%** |

### 8.5.3 Loss of dead storage capacity

| | |
|---|---|
| Capacity at D.S.L (97.54m) as per pre-impoundment survey 1964 | = 14.16 M.Cu.m |
| Capacity at D.S.L as per 2021 survey | = 0.237 M.Cu.m |
| Loss of storage up to D.S.L | = 14.16 – 0.237<br>= 13.923 M.Cu.m |
| Percentage loss of dead storage capacity in 57 years | = (13.923/14.16) x 100<br>= 98.33% |
| Annual percentage loss | = 98.33/57<br>= **1.73%** |

### 8.5.4 Loss of live storage capacity

| | |
|---|---|
| Live storage capacity as per pre-impoundment survey 1964 | = 237.86 –14.16<br>= 223.70 M.Cu.m |
| Live storage capacity as per 2021 survey | = 213.172 – 0.237<br>= 212.935 M.Cu.m |
| Loss of live storage capacity | = 223.70 – 212.935<br>=10.765 M.Cu.m |
| Percentage loss of live storage capacity in 57 years | = (10.765/223.70) x 100<br>= 4.81% |
| Annual percentage loss | = 4.81/57 |
| | = **0.08%** |

## 8.6 SUMMARY OF CAPACITY SURVEYS (1964 and 2021)

**Original Reservoir Data:**

Year of impounding : 1964
Catchment Area : 2406.00 Sq.Km
Spread area at F.R.L (107.90m) : 44.00 Sq.Km
Gross storage at F.R.L (107.90m) : 237.86 M.Cu.m
Dead storage at D.S.L (97.54m) : 14.16 M.Cu.m
Live storage at F.R.L (107.90m) : 223.70 M.Cu.m

| Rate of sedimentation (at F.R.L 107.90m) with respect to impounding year 1964 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sr. No | Year of Survey | Capacity in M.Cu.m | | | Silt Deposited in M.Cu.M | Period in years | Silt Rate in M.Cu.m/Year | Loss in Capacity in M.Cu.M and percentage | | | Silt Index ham/100 Sq.Km/Yr | Annual % loss of capacity | Remarks |
| | | Dead | Live | Gross | | | | Dead | Live | Gross | | | |
| 1 | 1964 | 14.16 | 223.700 | 237.860 | - | - | - | - | - | - | - | - | - |
| 3 | 2021 | 0.237 | 212.935 | 213.172 | 24.688 | 57 | 0.433 | 13.923<br>98.33% | 10.765<br>4.81% | 24.688<br>10.38% | 1.80 | 0.18 | **Significant Category** |

**Table 8: Rate of Sedimentation at F.R.L (107.90m)**

**<u>According to IS-12182 (1987)</u>**

| **Annual % loss** | **-** | **Class of Reservoir** |
|---|---|---|
| Up to 0.1 | - | Insignificant |
| 0.1 to 0.5 | - | Significant |
| Above 0.5 | - | Serious |

Rate of Silt – Loss in Gross Capacity/No of Years
Silt Index – Silt rate/Catchment area) x 10000
Annual % Loss – Loss in % of Gross Capacity/No. of years

## 8.7 DATA COMPARISON BETWEEN 1964, 1979, 2003, 2004 AND 2021

For Bhadar-1 reservoir, a number of capacity surveys were conducted in the past. The following table gives the dates of the previous capacity surveys.

| Sr. No | Year | Type of survey |
|---|---|---|
| 1 | 1964 | Survey at impounding |
| 2 | 1979 | Hydrographic survey |
| 3 | 2004 | Hydrographic survey |
| 4 | 2008 | Remote sensing survey for the period 2001 -2003 |

**Table 9: Dates of the previous surveys**

The available report for Bhadar-1 dam, provided by the client, is ''*Reservoir Capacity Survey through Remote Sensing Technique of Bhadar (S) reservoir',* conducted by Gujarat Engineering Research Institute. In this 2008 report of surveys carried out in 2001-2003, all the calculations were between 97.56m (M.D.D.L) and **106.41m (1.49m below F.R.L).**

Hence the following **Table 10** summarises the results the calculations carried out for Bhadar-1 reservoir at **106.41m below F.R.L.**

**Original Reservoir Data at 106.41m (1.49m below F.R.L):**

Year of impounding : 1964

Catchment Area : 2406.00 Sq.Km

Gross storage at F.R.L (106.41m) : 176.87 M.Cu.m

Dead storage at D.S.L (97.54m) : 14.16 M.Cu.m

Live storage at F.R.L (106.41m) : 162.71 M.Cu.m

| Rate of sedimentation (at 106.41m) with respect to impounding year | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sr. No | Year of Survey | Capacity in M.Cu.m | | | Silt Deposited in M.Cu.M | Period in years | Silt Rate in M.Cu.m /Year | Loss in Capacity in M.Cu.M and percentage | | | Silt Index ham/100 Sq.Km/Yr | Annual % loss of capacity | Remarks |
| | | Dead | Live | Gross | | | | Dead | Live | Gross | | | |
| 1 | 1964 | 14.16 | 162.71 | 176.87 | 46.875 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | - |
| 2 | 1979 | 0.258 | 129.737 | 129.995 | 40.427 | 15 | 3.125 | 13.902<br>98.18% | 32.973<br>20.26% | 46.875<br>26.50 % | 12.99 | 1.77 | **Serious Category** |
| 3 | 2008 (2001-2003) | 0.286 | 136.157 | 136.443 | 32.23 | 39 | 1.037 | 13.874<br>97.98% | 26.553<br>16.32% | 40.427<br>22.86% | 4.31 | 0.59 | **Serious Category** |
| 4 | 2004 | 0.327 | 144.313 | 144.64 | 27.932 | 40 | 0.806 | 13.833<br>97.69% | 18.397<br>11.31% | 32.23<br>18.22% | 3.35 | 0.46 | **Significant Category** |
| 5 | 2021 | 0.251 | 148.687 | 148.938 | 46.875 | 57 | 0.490 | 13.909<br>98.23% | 14.023<br>8.62% | 27.932<br>15.79% | 2.04 | 0.28 | **Significant Category** |

**Table 10: Rate of Sedimentation at 106.41m (1.49m below F.R.L)**

**<u>According to IS-12182 (1987)</u>**

| **Annual % loss** | **-** | **Class of Reservoir** |
|---|---|---|
| Up to 0.1 | - | Insignificant |
| 0.1 to 0.5 | - | Significant |
| Above 0.5 | - | Serious |

Rate of Silt – Loss in Gross Capacity/No of Years

Silt Index – Silt rate/Catchment area) x 10000

Annual % Loss – Loss in % of Gross Capacity/No. of years

## 8.8 DATA COMPARISON BETWEEN 1979 AND 2021

As per the 1979 survey, the F.R.L was fixed at 107.89m. Therefore, for ease of calculation, all the data is compared with respect to the elevation at 107.89m. For the Bhadar-1 reservoir, the water spread area at this level decreased from 44 $km^2$ to 42.25 $km^2$ between 1964 and 1979, possibly due to sedimentation along the banks of the reservoir and also because of less rainfall and runoff to the reservoir during the time of the survey. While comparing the data of 1979 and 2021, a significant increase in water spread area was observed from 42.25 $km^2$ to 46.96 $km^2$ at the elevation of 107.89m. The increase in area may possibly have been because of the conversion of reservoir banks and irregular flood plain into more flattened agricultural land. The increase in area reflects an increase in capacity of the reservoir. This will ultimately show an erosional condition of the reservoir rather than an expected siltation and corresponding loss of storage.

### 8.8.1 Rate of erosion

| | |
|---|---|
| Capacity at 107.89m as per the survey at 1979 | = 188.138 M.Cu.m |
| Capacity at 107.89 as per 2021 survey | = 212.703 M.Cu.m |
| Erosion in 42 years (1979-2021) | = 212.703 – 188.138<br>= 24.565 M.Cu.m |
| Annual erosion | = 24.565/42<br>= 0.585 M.Cu.m/yr |
| Rate of erosion | = (0.585/2406) x 1000<br>= 0.24 Th.Cu.m/sq.km/year |
| | **= 2.4 Ha.m/100sq.km./year** |

### 8.8.2 Increase in Gross storage capacity at 107.89m

| | |
|---|---|
| Capacity at 107.89m as per the survey at 1979 | = 188.138 M.Cu.m |
| Capacity at 107.89 as per 2021 survey | = 212.703 M.Cu.m |
| Increase in storage in 42 years (1979-2021) | = 212.703 – 188.138<br>= 24.565 M.Cu.m |
| Percentage increase of gross storage at F.R.L in 42 years | = (24.565/188.138) x 100<br>= 13.06% |
| Annual percentage increase | = 13.06/42<br>= **0.31%** |

### 8.8.3 Increase in dead storage capacity

| | |
|---|---|
| Capacity at D.S.L (97.54m) as per the survey at 1979 | = 0.226 M.Cu.m |
| Capacity at D.S.L as per 2021 survey | = 0.237 M.Cu.m |
| Increase of storage up to D.S.L | = 0.237 – 0.226<br>= 0.011 M.Cu.m |
| Percentage increase of dead storage capacity in 42 years | = (0.011/0.226) x 100<br>= 4.87% |
| Annual percentage increase | = 4.87/42<br>= **0.12%** |

### 8.8.4 Increase in live storage capacity

| | |
|---|---|
| Live storage capacity as per the survey at 1979 | = 188.138 – 0.266<br>= 187.912 M.Cu.m |
| Live storage capacity as per 2021 survey | = 212.703 – 0.237<br>= 212.466 M.Cu.m |
| Increase of live storage capacity | = 212.466 – 187.912<br>= 24.554 M.Cu.m |
| Percentage increase of live storage capacity in 42 years | = (24.554/188.138) x 100<br>= 13.07% |
| Annual percentage increase | = 13.07/42<br>**= 0.31%** |

## 8.9 SUMMARY OF CAPACITY SURVEYS (1979 and 2021)

**Original Reservoir Data:**

Year of impounding : 1964
Year of silt survey : 1979
Catchment Area : 2406.00 Sq.Km
Spread area at F.R.L (107.89m) : 42.25 Sq.Km
Gross storage at F.R.L (107.89m) : 188.138 M.Cu.m
Dead storage at D.S.L (97.54m) : 0.226 M.Cu.m
Live storage at F.R.L (107.89m) : 187.912 M.Cu.m

| Rate of erosion (at F.R.L 107.89m) with respect to silt survey in 1979 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sr. No | Year of Survey | Capacity in M.Cu.m | | | Silt eroded in M.Cu.M | Period in years | Erosion Rate in M.Cu.m/Year | Increase in Capacity in M.Cu.M and percentage | | | Erosion Index ham/100 Sq.Km/Yr | Annual % increase of capacity | Remarks |
| | | Dead | Live | Gross | | | | Dead | Live | Gross | | | |
| 2 | 1979 | 0.226 | 187.912 | 188.138 | - | - | - | - | - | - | - | - | - |
| 3 | 2021 | 0.237 | 212.466 | 212.703 | 24.565 | 42 | 0.585 | 0.011<br>4.87% | 24.554<br>13.07% | 24.565<br>13.06% | 2.4 | 0.31 | **Significant Category** |

**Table 11: Rate of Sedimentation at F.R.L (107.89m)**

**According to IS-12182 (1987)**

| **Annual % loss** | **-** | **Class of Reservoir** |
|---|---|---|
| Up to 0.1 | - | Insignificant |
| 0.1 to 0.5 | - | Significant |
| Above 0.5 | - | Serious |

Rate of Silt – Loss in Gross Capacity/No of Years
Silt Index – Silt rate/Catchment area) x 10000
Annual % Loss – Loss in % of Gross Capacity/No. of years

*Note: As per the 1979 survey data, the F.R.L is marked at 107.89m. Gross storage at this elevation was used for calculations.*

## 8.10 LOSS OF STORAGE DUE TO SEDIMENT DEPOSIT

Reservoirs, created by dams on rivers, lose their storage capacity due to sedimentation. A large proportion of the transported silt eventually gets deposited at different levels of a reservoir and causes reduction not only in dead storage but also in live storage capacities. The consequence of loss in storage due to sediment accumulation may even cause operational problems. Periodic capacity survey of a reservoir is thus essential to ascertain the rate of sedimentation and reduction in storage capacity for efficient and productive management of water resources. Reservoir siltation affects the safety of an old reservoir since the sediment in the reservoirs increases the load on the wall of the dam.

For Bhadar 1 reservoir, the comparison of current capacity data with the previous capacity data of 1964 survey shows a decrease in capacity at all levels, including the dead storage and live storage which ultimately results in a decrease in gross storage capacity. The change in storage capacity is directly proportional to the amount of sediment deposited. The sediment deposition may occur not only in the dead storage area but also at all levels of dead and live storage areas.

The detailed comparison of current capacity data at different levels to the previous capacity data of the 1979 survey shows an increase in capacity within the dead storage and live storage areas except at 98.02m elevation, where sediment deposition was noticed. This increase in capacity could be due to the further deepening of the river channel or the sediment removal, possibly due to a flood. Another possibility is that the changes in the water spread area at FRL due to conversion of irregular land area into levelled cultivation fields.

The increase or loss in capacity within in the reservoir is directly proportional to the amount of sediment removed or deposited within the reservoir. This sediment removal or deposition can occur at any level of the reservoir throughout the live and dead storage area. This removal or deposition of the sediment within the reservoir results in a corresponding increase or loss of capacity.

For ease of reporting, the previous capacity data in the 1979 survey and current capacity data in the 2021 survey were selected at regular intervals. The following **Table 12** shows the amount of erosion and deposition of sediment at different levels from the DSL to F.R.L and corresponding percentage increase or loss in capacity at different levels.

| Elevation (Above MSL, m) | Capacity 1979 (M.Cu.m) | Area 2021 (M.Sq.m or Sq.Km) | Capacity 2021 (M.Cu.m) | Erosion / Deposition of Sediment (M.Cu.m) | % Increase / Loss of Capacity |
|---|---|---|---|---|---|
| 97.54 | 0.226 | 0.71 | 0.237 | 0.011 | 4.64 |
| 98.02 | 1.103 | 2.18 | 0.873 | 0.230* | 20.85** |
| 98.51 | 2.365 | 3.93 | 2.404 | 0.039 | 1.62 |
| 99.02 | 4.058 | 5.32 | 4.768 | 0.710 | 14.89 |
| 99.52 | 6.438 | 6.52 | 7.720 | 1.282 | 16.61 |
| 100.00 | 9.452 | 7.94 | 11.179 | 1.727 | 15.45 |
| 100.52 | 12.496 | 9.52 | 15.719 | 3.223 | 20.50 |
| 101.01 | 16.164 | 11.15 | 20.779 | 4.615 | 22.21 |
| 101.50 | 21.253 | 12.75 | 26.632 | 5.379 | 20.20 |
| 102.02 | 28.226 | 14.99 | 33.839 | 5.613 | 16.59 |
| 102.50 | 34.489 | 17.09 | 41.518 | 7.029 | 16.93 |

| Elevation (Above MSL, m) | Capacity 1979 (M.Cu.m) | Area 2021 (M.Sq.m or Sq.Km) | Capacity 2021 (M.Cu.m) | Erosion / Deposition of Sediment (M.Cu.m) | % Increase / Loss of Capacity |
|---|---|---|---|---|---|
| 103.02 | 41.912 | 19.72 | 51.084 | 9.172 | 17.95 |
| 103.51 | 51.432 | 22.27 | 61.382 | 9.950 | 16.21 |
| 104.00 | 62.701 | 24.92 | 72.955 | 10.254 | 14.06 |
| 104.51 | 73.848 | 27.43 | 86.302 | 12.454 | 14.43 |
| 105.00 | 86.201 | 30.03 | 100.363 | 14.162 | 14.11 |
| 105.52 | 101.732 | 33.23 | 116.775 | 15.043 | 12.88 |
| 106.01 | 116.516 | 36.42 | 133.829 | 17.313 | 12.94 |
| 106.50 | 133.009 | 39.66 | 152.483 | 19.474 | 12.77 |
| 107.01 | 149.771 | 42.41 | 173.419 | 23.648 | 13.64 |
| 107.50 | 170.906 | 44.87 | 194.809 | 23.903 | 12.27 |
| 107.89 | 188.138 | 46.96 | 212.703 | 24.565 | 11.55 |

**Table 12: Loss/increase of storage capacity between 1979 and 2021**

Note*:*

- *Values highlighted with single asterisks (*) represents the volume of sediment deposited.*
- *Values highlighted with double asterisks (**) represents the percentage (%) decrease of storage capacity.*

The amount of silt present in any reservoir is attributed to the geological nature of the area surrounding the reservoir. If the area is rich in silt, definitely any reservoir located within the area will have a greater proportion of silt in any sediment transported into it. Since erosion sedimentation is a serious problem in different parts of the world today resulting in several reservoirs becoming completely silted over, designers should aim at the following mitigation measures of soil erosion and sediment transport processes:

- Prevention of further land degradation in any catchment to reduce siltation
- Prevention of soil erosion from catchment to reduce siltation of reservoir
- Ensuring adequate irrigation water to the demand area
- Improving land capability moisture regime in the watershed
- Improving land use to match capability
- Maintaining ecological balance in a catchment area
- Educating people in the management of a catchment

## 8.11 CONTROL OF SEDIMENTATION IN RESERVOIRS

Sedimentation in a reservoir is a natural process which affects the capacity of the reservoir. Excess deposition of sediment directly affects the useful capacity of the reservoir based on the project requirements like irrigation, hydroelectric power, flood control etc. The rate of deposition of sediment largely depends on the annual sediment load carried by the streams and up to what extent the sediment is retained in the reservoir. This, in turn, depends upon a number of factors such as the area and nature of the catchment, level use pattern (cultivation practices, grazing, logging, construction activities and conservation practices), rainfall pattern, storage capacity, period of storage in relation to the sediment

load of the stream, particle size distribution in the suspended sediment, channel hydraulics, location and size of sluices, outlet works, configuration of the reservoir, and the method and purpose of releases through the dam. An appropriate approach to these factors mentioned above is essential for efficient control of sedimentation and therefore to extend the life of the reservoir.

There are numerous techniques developed to control the sedimentation in reservoirs, broadly classified as

I. Suitable design of reservoir
II. Restrict the sediment inflow
III. Limit the sediment deposition
IV. Regular removal of deposited sediment

### 8.11.1 Suitable design of reservoir

The volume of discharge directly affects the rate of sedimentation. The rate of sedimentation increases with the volume of discharge. The higher deposition of sediment within a reservoir increases the surface area of the water, thereby resulting in greater loss of water by evaporation. This will ultimately decrease of storage capacity which in turn lowers the trap efficiency of the reservoir.

The capacity of the reservoir and the size and characteristics of the reservoir and its drainage area are the most important factors governing the annual rate of accumulation of sediment. Periodic reservoir sediment surveys provide information about the rate of sediment deposited, hence can enable us to make necessary steps to limit the same. The sedimentation may take place not only in the dead storage area of a reservoir; reservoir studies have revealed significant deposition of sediment in the live storage area of a reservoir as well.

The capacity of reservoirs largely depends on various factors. Hence the following points need to be considered for their optimum design.

- Topographical, geological and geomorphological factors which directly affect the sediment yield
- Sediment delivery characteristics of the channel system
- The efficiency of the reservoir as a sediment trap
- The ratio of capacity of the reservoir to the inflow
- Configuration of the reservoir
- Method of operation of the reservoir
- Provisions for silt exclusion

### 8.11.2 Restrict the sediment inflow

The sediment inflow to the reservoirs can be controlled by proper watershed management and soil conservation measures to check production and transport of sediment to the catchment area. Also adopt adequate ppreventive measures to check the inflow of sediment into the reservoir. Soil conservation involves the prevention of loss of the topmost layer of the soil from erosion or prevention of reduced fertility caused by over usage, acidification, salinization or other chemical soil contamination. The soil conservation measures are further sub-divided as

- Engineering
- Agronomy
- Forestry

***Engineering methods***

*Check dams*

One of the methods of soil conservation is the use of check dams. A check dam is a small dam which can be either temporary or permanent, built across a minor channel, swale, or drainage ditch. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion.

*Contour trenching and bunding*

In the contour trenching method, the surrounding area of the reservoir is ploughed, like contour lines. These contour lines create a water break which reduces the formation of rills and gullies during times of heavy precipitation, allowing more time for the water to settle into the soil. Also, trenches can be artificially dug along the contour lines. Water flowing down the hill is retained by the trenches, and infiltrates the soil below. Manually dug trenches are smaller, machine dug trenches can be deeper. The dimensions and the format of the trenches should correspond to the local climate and soil conditions.

A similar practice is contour bunding where stones are placed around the contours of slopes. Contour bunding or contour bundling, and contour farming involves the placement of lines of stones along the natural rises of a landscape. These techniques help to capture and hold rainfall before it can become runoff. Contour bunds also help to control soil erosion.

*Gully Plugging*

A gully plug is a small, temporary or permanent dam constructed across a drainage ditch, swale, or channel to lower the speed of concentrated flows. These dams can be constructed using locally available materials. These small dams reduce the speed of water flow and minimise the erosive power of runoff. They also promote the deposition of eroded materials to further stabilise the gullies.

***Agronomy methods***

Agronomic conservation measures function by reducing the impact of raindrops through interception and thus reducing soil erosion and increasing infiltration rates, and also reducing surface runoff and soil erosion. The major agronomic soil and water conservation practices are strip cropping, mixed cropping, intercropping, fallowing, mulching, contour ploughing, crop rotation, conservation tillage, and agroforestry.

***Forestry methods***

Forestry measures include forest conservancy, control on grazing, lumbering operations and forest fires along with management and protection of forest plantations.

### 8.11.3 Limit sediment deposition

The amount of suspended sediment is comparatively large during and just after flood flow. The settlement of sediment in the reservoir can be controlled by adequate operation of outlets in such a manner as to permit selective withdrawals of water having a higher-than-average sediment content. Thus, more water wasted at peak time of inflow will result a low level of sediment to deposit in the reservoir. There are two methods:

***Density Current***

Water at various levels of a reservoir often contains radically different concentrations of suspended sediment, particularly during and after flood flows and if all waste-water could be withdrawn at those levels where the concentration is highest, a significant amount of sediment might be removed from the reservoir. The density differences between the sediment-laden inflow and the clear water in the reservoir leads to a turbidity current which plunges beneath the clear water and moves towards the dam as a submerged current. The proper allocation of gates or sluices can remove a significant amount of sediment-saturated water and therefore can reduce the amount of sedimentation.

***Waste-Water Release***

This method is applicable only when a reservoir is of such a size that a small part of large flood flows will fill it. A series of outlets at various elevations can eject sediment-saturated water. This method, which can remove considerable amount of sediment from the reservoir through proper gate control, will differ greatly with different locations. The drawback of this method is that waste-water release is only possible when water can be or should be wasted.

### 8.11.4 Regular removal of deposited sediment

Removal of accumulated sediment is considered as the last resort as the operations are very expensive unless the excavated sediment is economically usable. The removal of sediment deposits may be accomplished by a variety of mechanical and hydraulic methods, such as excavation, dredging, draining and flushing, sluicing aided by such measures as hydraulic or mechanical agitation or blasting of the sediment.

***Excavation***

Excavation is the removal of the sediment by hand or power operated shovel, dragline scraper or other mechanical means after draining most of the water. The excavation of silt and clay which constitute most of the material in larger reservoirs is more difficult than the excavation of sand and gravel. Fine-textured sediment cannot be excavated easily from larger reservoirs unless it is relatively fluid or relatively compact.

***Dredging***

In this method, the deposit is removed from the bottom of the reservoir irrespective of the level of storage using mechanical or hydraulic equipment. The various types of dredging are mechanical dredging by bucket, suction dredging with floating pipeline and a pump on a barge and siphon dredging with a floating pipe extending over the dam or connected to an opening in the dam and with a pump on a barge.

***Draining and flushing***

This method, also called flood sluicing, involves a relatively slow release of all stored water in a reservoir through gates or valves located near the bottom of the dam and the maintenance thereafter of open outlets for a shorter or longer period during which normal stream flow cuts into or is directed against the sediment deposits.

***Sluicing with Controlled Water***

In this method the controlled water supply permits choosing the time of sluicing more advantageously and the water may be directed more effectively against the sediment deposits. While the flood sluicing depends either on the occurrence of flood or on being able to release rapidly all of a full or nearly full supply of water in the main reservoir. The advantage of this method is that generally more sediment can be removed per unit of water used than in flood scouring or draining and flushing.

***Sluicing with Hydraulics and Mechanical Agitation***

In this method, stirring up, breaking up or moving deposits of a sediment into a stream current moving through a drained reservoir basin or into a full reservoir will tend to make the removal of sediment from the reservoir more complete. Wherever draining, flushing or sluicing appear to be warranted, the additional use of hydraulic means for stirring up the sediment deposits, or sloughing them off, into a stream flowing through the reservoir basin should be considered.

# 9 CONCLUSIONS

- Bhadar-1 reservoir was completed in 1964. With an area of 44.00 $km^2$, Full Reservoir Level (F.R.L) of the Bhadar 1 reservoir is 107.90m above M.S.L over a Catchment Area of 2406 $km^2$. The gross storage (at F.R.L:107.90) and dead storage (at D.S.L:97.54) at the time of impounding are 237.86 M.Cu.m and 14.16 M.Cu.m respectively.
- Reports of four capacity surveys were provided to us for comparison with the current survey; 1964, 1979, 2004 and 2008 (period 2001 -2003) using hydrographic and remote sensing techniques.
- In the current bathymetric and topographic survey, a minimum elevation of 95.8m was observed in the southwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 117.22m is observed in the northwestern portion of the survey area.
- The survey was extended till the High Flood Level (H.F.L:110.33m). Except near the survey boundary, most of the area of river channels are observed running from north to south and east to west, with elevation contours between 100m and 98m and covering a wide area of 99m contour within the area near the dam gates
- The comparison between 1964 and 2021 (57 years) data results shows a rate of siltation (Silt Index) at a rate of 1.80 Ha.m/100sq.km./year. Annual percentage loss of gross storage capacity, live storage capacity and dead storage capacity are 0.18%, 0.08% and 1.73% respectively.
- The comparison between 1964 and 1979 (15 years) data results shows a rate of siltation (Silt Index) at a rate of 13.78 Ha.m/100sq.km./year. Annual percentage loss of gross storage capacity is 1.39.
- The comparison between 1979 and 2021 (42 years) data results indicates a significant increase in water spread area, from 42.25 $km^2$ to 46.96 $km^2$ at 107.89m. The corresponding increase in volume resulted in an erosion phase during this period. The rate of erosion is calculated as 2.4 Ha.m/100sq.km./year.
- The comparison of 1979, 2003, 2004 and 2021 data with respect to the 1964 impounding data at 106.41m (1.49m below F.R.L) shows the silt index at the rate of Ha.M/100 sq.km/year to be 12.99, 4.31, 3.35 and 2.04 respectively.
- The comparison of current capacity data to the previous capacity data of 1964 survey shows a decrease in capacity at all levels, resulting in a decrease in gross storage capacity, with a corresponding volume of sediment deposited at all levels of the reservoir.
- The detailed comparison of current capacity data at different levels with the previous capacity data of the 1979 survey shows an increase in capacity within the dead storage and live storage areas except at 98.02m elevation, where sediment deposition was noticed.
- The increase in capacity from 1979 to 2021 is possibly due to the further deepening of the river channel or sediment removal, possibly due to a flood or changes in the water spread area at FRL by the conversion of irregular land area into levelled cultivation fields.
- The removal or deposition of the sediment within the reservoir results in a corresponding increase or loss of storage capacity.

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# Annexure - 1

# Elevation Area Capacity

# Bhadar 1 Reservoir

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 314.40 | 95.83 | 0.005 | 0.000 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.44 | 95.84 | 0.006 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.47 | 95.85 | 0.007 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.50 | 95.86 | 0.008 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.53 | 95.87 | 0.010 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.57 | 95.88 | 0.011 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.60 | 95.89 | 0.013 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.63 | 95.9 | 0.015 | 0.001 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.67 | 95.91 | 0.018 | 0.002 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.70 | 95.92 | 0.020 | 0.002 | 0.000 | 0.000 | 0.00 | 0.000 |
| 314.73 | 95.93 | 0.023 | 0.002 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.76 | 95.94 | 0.026 | 0.002 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.80 | 95.95 | 0.029 | 0.003 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.83 | 95.96 | 0.032 | 0.003 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.86 | 95.97 | 0.035 | 0.003 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.90 | 95.98 | 0.039 | 0.004 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.93 | 95.99 | 0.043 | 0.004 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.96 | 96 | 0.048 | 0.004 | 0.000 | 0.000 | 0.01 | 0.000 |
| 314.99 | 96.01 | 0.052 | 0.005 | 0.000 | 0.000 | 0.01 | 0.000 |
| 315.03 | 96.02 | 0.059 | 0.005 | 0.000 | 0.000 | 0.02 | 0.000 |
| 315.06 | 96.03 | 0.066 | 0.006 | 0.000 | 0.000 | 0.02 | 0.001 |
| 315.09 | 96.04 | 0.074 | 0.007 | 0.000 | 0.000 | 0.02 | 0.001 |
| 315.12 | 96.05 | 0.082 | 0.008 | 0.000 | 0.000 | 0.02 | 0.001 |
| 315.16 | 96.06 | 0.088 | 0.008 | 0.000 | 0.000 | 0.03 | 0.001 |
| 315.19 | 96.07 | 0.094 | 0.009 | 0.000 | 0.000 | 0.03 | 0.001 |
| 315.22 | 96.08 | 0.101 | 0.009 | 0.000 | 0.000 | 0.03 | 0.001 |
| 315.26 | 96.09 | 0.108 | 0.010 | 0.000 | 0.000 | 0.04 | 0.001 |
| 315.29 | 96.1 | 0.115 | 0.011 | 0.000 | 0.000 | 0.04 | 0.001 |
| 315.32 | 96.11 | 0.122 | 0.011 | 0.000 | 0.000 | 0.04 | 0.001 |
| 315.35 | 96.12 | 0.129 | 0.012 | 0.000 | 0.000 | 0.05 | 0.001 |
| 315.39 | 96.13 | 0.137 | 0.013 | 0.000 | 0.000 | 0.05 | 0.001 |
| 315.42 | 96.14 | 0.144 | 0.013 | 0.000 | 0.000 | 0.06 | 0.002 |
| 315.45 | 96.15 | 0.152 | 0.014 | 0.000 | 0.000 | 0.06 | 0.002 |
| 315.49 | 96.16 | 0.161 | 0.015 | 0.000 | 0.000 | 0.07 | 0.002 |
| 315.52 | 96.17 | 0.170 | 0.016 | 0.000 | 0.000 | 0.07 | 0.002 |
| 315.55 | 96.18 | 0.180 | 0.017 | 0.000 | 0.000 | 0.08 | 0.002 |
| 315.58 | 96.19 | 0.190 | 0.018 | 0.000 | 0.000 | 0.08 | 0.002 |
| 315.62 | 96.2 | 0.200 | 0.019 | 0.000 | 0.000 | 0.09 | 0.003 |
| 315.65 | 96.21 | 0.211 | 0.020 | 0.000 | 0.000 | 0.10 | 0.003 |
| 315.68 | 96.22 | 0.221 | 0.021 | 0.000 | 0.000 | 0.10 | 0.003 |
| 315.72 | 96.23 | 0.231 | 0.021 | 0.000 | 0.000 | 0.11 | 0.003 |
| 315.75 | 96.24 | 0.241 | 0.022 | 0.000 | 0.000 | 0.12 | 0.003 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 315.78 | 96.25 | 0.251 | 0.023 | 0.000 | 0.000 | 0.13 | 0.004 |
| 315.81 | 96.26 | 0.261 | 0.024 | 0.000 | 0.000 | 0.14 | 0.004 |
| 315.85 | 96.27 | 0.271 | 0.025 | 0.000 | 0.000 | 0.14 | 0.004 |
| 315.88 | 96.28 | 0.281 | 0.026 | 0.000 | 0.000 | 0.15 | 0.004 |
| 315.91 | 96.29 | 0.290 | 0.027 | 0.000 | 0.000 | 0.16 | 0.005 |
| 315.94 | 96.3 | 0.300 | 0.028 | 0.000 | 0.000 | 0.17 | 0.005 |
| 315.98 | 96.31 | 0.311 | 0.029 | 0.000 | 0.000 | 0.18 | 0.005 |
| 316.01 | 96.32 | 0.321 | 0.030 | 0.000 | 0.000 | 0.19 | 0.005 |
| 316.04 | 96.33 | 0.330 | 0.031 | 0.000 | 0.000 | 0.20 | 0.006 |
| 316.08 | 96.34 | 0.339 | 0.032 | 0.000 | 0.000 | 0.21 | 0.006 |
| 316.11 | 96.35 | 0.349 | 0.032 | 0.000 | 0.000 | 0.23 | 0.006 |
| 316.14 | 96.36 | 0.358 | 0.033 | 0.000 | 0.000 | 0.24 | 0.007 |
| 316.17 | 96.37 | 0.368 | 0.034 | 0.000 | 0.000 | 0.25 | 0.007 |
| 316.21 | 96.38 | 0.377 | 0.035 | 0.000 | 0.000 | 0.26 | 0.007 |
| 316.24 | 96.39 | 0.386 | 0.036 | 0.000 | 0.000 | 0.27 | 0.008 |
| 316.27 | 96.4 | 0.395 | 0.037 | 0.000 | 0.000 | 0.29 | 0.008 |
| 316.31 | 96.41 | 0.404 | 0.037 | 0.000 | 0.000 | 0.30 | 0.008 |
| 316.34 | 96.42 | 0.413 | 0.038 | 0.000 | 0.000 | 0.31 | 0.009 |
| 316.37 | 96.43 | 0.422 | 0.039 | 0.000 | 0.000 | 0.33 | 0.009 |
| 316.40 | 96.44 | 0.431 | 0.040 | 0.000 | 0.000 | 0.34 | 0.010 |
| 316.44 | 96.45 | 0.441 | 0.041 | 0.000 | 0.000 | 0.36 | 0.010 |
| 316.47 | 96.46 | 0.450 | 0.042 | 0.000 | 0.000 | 0.37 | 0.010 |
| 316.50 | 96.47 | 0.460 | 0.043 | 0.000 | 0.000 | 0.38 | 0.011 |
| 316.54 | 96.48 | 0.470 | 0.044 | 0.000 | 0.000 | 0.40 | 0.011 |
| 316.57 | 96.49 | 0.479 | 0.045 | 0.000 | 0.000 | 0.42 | 0.012 |
| 316.60 | 96.5 | 0.489 | 0.045 | 0.000 | 0.000 | 0.43 | 0.012 |
| 316.63 | 96.51 | 0.499 | 0.046 | 0.000 | 0.000 | 0.45 | 0.013 |
| 316.67 | 96.52 | 0.509 | 0.047 | 0.000 | 0.000 | 0.46 | 0.013 |
| 316.70 | 96.53 | 0.518 | 0.048 | 0.000 | 0.000 | 0.48 | 0.014 |
| 316.73 | 96.54 | 0.528 | 0.049 | 0.000 | 0.000 | 0.50 | 0.014 |
| 316.77 | 96.55 | 0.538 | 0.050 | 0.000 | 0.000 | 0.52 | 0.015 |
| 316.80 | 96.56 | 0.548 | 0.051 | 0.000 | 0.000 | 0.53 | 0.015 |
| 316.83 | 96.57 | 0.558 | 0.052 | 0.000 | 0.000 | 0.55 | 0.016 |
| 316.86 | 96.58 | 0.568 | 0.053 | 0.000 | 0.000 | 0.57 | 0.016 |
| 316.90 | 96.59 | 0.578 | 0.054 | 0.000 | 0.000 | 0.59 | 0.017 |
| 316.93 | 96.6 | 0.589 | 0.055 | 0.000 | 0.000 | 0.61 | 0.017 |
| 316.96 | 96.61 | 0.600 | 0.056 | 0.000 | 0.000 | 0.63 | 0.018 |
| 316.99 | 96.62 | 0.611 | 0.057 | 0.000 | 0.000 | 0.65 | 0.018 |
| 317.03 | 96.63 | 0.623 | 0.058 | 0.000 | 0.000 | 0.67 | 0.019 |
| 317.06 | 96.64 | 0.634 | 0.059 | 0.000 | 0.000 | 0.69 | 0.019 |
| 317.09 | 96.65 | 0.646 | 0.060 | 0.000 | 0.000 | 0.71 | 0.020 |
| 317.13 | 96.66 | 0.658 | 0.061 | 0.000 | 0.000 | 0.73 | 0.021 |
| 317.16 | 96.67 | 0.672 | 0.062 | 0.000 | 0.000 | 0.75 | 0.021 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 317.19 | 96.68 | 0.687 | 0.064 | 0.000 | 0.000 | 0.77 | 0.022 |
| 317.22 | 96.69 | 0.702 | 0.065 | 0.000 | 0.000 | 0.80 | 0.023 |
| 317.26 | 96.7 | 0.717 | 0.067 | 0.000 | 0.000 | 0.82 | 0.023 |
| 317.29 | 96.71 | 0.734 | 0.068 | 0.000 | 0.000 | 0.84 | 0.024 |
| 317.32 | 96.72 | 0.751 | 0.070 | 0.000 | 0.000 | 0.87 | 0.025 |
| 317.36 | 96.73 | 0.769 | 0.071 | 0.000 | 0.000 | 0.89 | 0.025 |
| 317.39 | 96.74 | 0.788 | 0.073 | 0.000 | 0.000 | 0.92 | 0.026 |
| 317.42 | 96.75 | 0.808 | 0.075 | 0.000 | 0.000 | 0.95 | 0.027 |
| 317.45 | 96.76 | 0.829 | 0.077 | 0.000 | 0.000 | 0.97 | 0.028 |
| 317.49 | 96.77 | 0.850 | 0.079 | 0.000 | 0.000 | 1.00 | 0.028 |
| 317.52 | 96.78 | 0.870 | 0.081 | 0.000 | 0.000 | 1.03 | 0.029 |
| 317.55 | 96.79 | 0.892 | 0.083 | 0.000 | 0.000 | 1.06 | 0.030 |
| 317.59 | 96.8 | 0.914 | 0.085 | 0.000 | 0.000 | 1.09 | 0.031 |
| 317.62 | 96.81 | 0.937 | 0.087 | 0.000 | 0.000 | 1.12 | 0.032 |
| 317.65 | 96.82 | 0.961 | 0.089 | 0.000 | 0.000 | 1.15 | 0.033 |
| 317.68 | 96.83 | 0.986 | 0.092 | 0.000 | 0.000 | 1.18 | 0.033 |
| 317.72 | 96.84 | 1.013 | 0.094 | 0.000 | 0.000 | 1.21 | 0.034 |
| 317.75 | 96.85 | 1.043 | 0.097 | 0.000 | 0.000 | 1.25 | 0.035 |
| 317.78 | 96.86 | 1.076 | 0.100 | 0.000 | 0.000 | 1.28 | 0.036 |
| 317.81 | 96.87 | 1.107 | 0.103 | 0.000 | 0.000 | 1.32 | 0.037 |
| 317.85 | 96.88 | 1.137 | 0.106 | 0.000 | 0.000 | 1.35 | 0.038 |
| 317.88 | 96.89 | 1.167 | 0.108 | 0.000 | 0.000 | 1.39 | 0.039 |
| 317.91 | 96.9 | 1.198 | 0.111 | 0.000 | 0.000 | 1.43 | 0.041 |
| 317.95 | 96.91 | 1.231 | 0.114 | 0.000 | 0.000 | 1.47 | 0.042 |
| 317.98 | 96.92 | 1.263 | 0.117 | 0.000 | 0.000 | 1.51 | 0.043 |
| 318.01 | 96.93 | 1.294 | 0.120 | 0.000 | 0.000 | 1.55 | 0.044 |
| 318.04 | 96.94 | 1.326 | 0.123 | 0.000 | 0.000 | 1.60 | 0.045 |
| 318.08 | 96.95 | 1.358 | 0.126 | 0.000 | 0.000 | 1.64 | 0.046 |
| 318.11 | 96.96 | 1.390 | 0.129 | 0.000 | 0.000 | 1.69 | 0.048 |
| 318.14 | 96.97 | 1.424 | 0.132 | 0.000 | 0.000 | 1.73 | 0.049 |
| 318.18 | 96.98 | 1.460 | 0.136 | 0.000 | 0.000 | 1.78 | 0.050 |
| 318.21 | 96.99 | 1.496 | 0.139 | 0.000 | 0.000 | 1.83 | 0.052 |
| 318.24 | 97 | 1.534 | 0.143 | 0.000 | 0.000 | 1.88 | 0.053 |
| 318.27 | 97.01 | 1.572 | 0.146 | 0.000 | 0.000 | 1.93 | 0.055 |
| 318.31 | 97.02 | 1.610 | 0.150 | 0.000 | 0.000 | 1.98 | 0.056 |
| 318.34 | 97.03 | 1.649 | 0.153 | 0.000 | 0.000 | 2.03 | 0.058 |
| 318.37 | 97.04 | 1.689 | 0.157 | 0.000 | 0.000 | 2.09 | 0.059 |
| 318.41 | 97.05 | 1.733 | 0.161 | 0.000 | 0.000 | 2.14 | 0.061 |
| 318.44 | 97.06 | 1.780 | 0.165 | 0.000 | 0.000 | 2.20 | 0.062 |
| 318.47 | 97.07 | 1.828 | 0.170 | 0.000 | 0.000 | 2.26 | 0.064 |
| 318.50 | 97.08 | 1.879 | 0.175 | 0.000 | 0.000 | 2.32 | 0.066 |
| 318.54 | 97.09 | 1.931 | 0.179 | 0.000 | 0.000 | 2.38 | 0.068 |
| 318.57 | 97.1 | 1.985 | 0.184 | 0.000 | 0.000 | 2.45 | 0.069 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 318.60 | 97.11 | 2.042 | 0.190 | 0.000 | 0.000 | 2.51 | 0.071 |
| 318.64 | 97.12 | 2.101 | 0.195 | 0.000 | 0.000 | 2.58 | 0.073 |
| 318.67 | 97.13 | 2.162 | 0.201 | 0.000 | 0.000 | 2.65 | 0.075 |
| 318.70 | 97.14 | 2.223 | 0.207 | 0.000 | 0.000 | 2.72 | 0.077 |
| 318.73 | 97.15 | 2.286 | 0.212 | 0.000 | 0.000 | 2.80 | 0.079 |
| 318.77 | 97.16 | 2.349 | 0.218 | 0.000 | 0.000 | 2.87 | 0.081 |
| 318.80 | 97.17 | 2.412 | 0.224 | 0.000 | 0.000 | 2.95 | 0.084 |
| 318.83 | 97.18 | 2.478 | 0.230 | 0.000 | 0.000 | 3.03 | 0.086 |
| 318.86 | 97.19 | 2.544 | 0.236 | 0.000 | 0.000 | 3.12 | 0.088 |
| 318.90 | 97.2 | 2.611 | 0.243 | 0.000 | 0.000 | 3.20 | 0.091 |
| 318.93 | 97.21 | 2.681 | 0.249 | 0.000 | 0.000 | 3.29 | 0.093 |
| 318.96 | 97.22 | 2.754 | 0.256 | 0.000 | 0.000 | 3.38 | 0.096 |
| 319.00 | 97.23 | 2.831 | 0.263 | 0.000 | 0.000 | 3.47 | 0.098 |
| 319.03 | 97.24 | 2.914 | 0.271 | 0.000 | 0.000 | 3.56 | 0.101 |
| 319.06 | 97.25 | 3.002 | 0.279 | 0.000 | 0.000 | 3.66 | 0.104 |
| 319.09 | 97.26 | 3.097 | 0.288 | 0.000 | 0.000 | 3.76 | 0.106 |
| 319.13 | 97.27 | 3.196 | 0.297 | 0.000 | 0.000 | 3.86 | 0.109 |
| 319.16 | 97.28 | 3.295 | 0.306 | 0.000 | 0.000 | 3.97 | 0.112 |
| 319.19 | 97.29 | 3.396 | 0.315 | 0.000 | 0.000 | 4.08 | 0.115 |
| 319.23 | 97.3 | 3.498 | 0.325 | 0.000 | 0.000 | 4.19 | 0.119 |
| 319.26 | 97.31 | 3.601 | 0.335 | 0.000 | 0.000 | 4.31 | 0.122 |
| 319.29 | 97.32 | 3.710 | 0.345 | 0.000 | 0.000 | 4.43 | 0.125 |
| 319.32 | 97.33 | 3.826 | 0.355 | 0.000 | 0.000 | 4.55 | 0.129 |
| 319.36 | 97.34 | 3.945 | 0.367 | 0.000 | 0.000 | 4.68 | 0.132 |
| 319.39 | 97.35 | 4.074 | 0.378 | 0.000 | 0.000 | 4.81 | 0.136 |
| 319.42 | 97.36 | 4.215 | 0.392 | 0.000 | 0.000 | 4.95 | 0.140 |
| 319.46 | 97.37 | 4.362 | 0.405 | 0.000 | 0.000 | 5.09 | 0.144 |
| 319.49 | 97.38 | 4.516 | 0.420 | 0.000 | 0.000 | 5.23 | 0.148 |
| 319.52 | 97.39 | 4.677 | 0.435 | 0.000 | 0.000 | 5.38 | 0.152 |
| 319.55 | 97.4 | 4.846 | 0.450 | 0.000 | 0.000 | 5.54 | 0.157 |
| 319.59 | 97.41 | 5.018 | 0.466 | 0.000 | 0.000 | 5.70 | 0.161 |
| 319.62 | 97.42 | 5.194 | 0.483 | 0.000 | 0.000 | 5.87 | 0.166 |
| 319.65 | 97.43 | 5.376 | 0.499 | 0.000 | 0.000 | 6.04 | 0.171 |
| 319.69 | 97.44 | 5.561 | 0.517 | 0.000 | 0.000 | 6.22 | 0.176 |
| 319.72 | 97.45 | 5.745 | 0.534 | 0.000 | 0.000 | 6.41 | 0.181 |
| 319.75 | 97.46 | 5.933 | 0.551 | 0.000 | 0.000 | 6.60 | 0.187 |
| 319.78 | 97.47 | 6.124 | 0.569 | 0.000 | 0.000 | 6.80 | 0.192 |
| 319.82 | 97.48 | 6.318 | 0.587 | 0.000 | 0.000 | 7.00 | 0.198 |
| 319.85 | 97.49 | 6.527 | 0.606 | 0.000 | 0.000 | 7.21 | 0.204 |
| 319.88 | 97.5 | 6.732 | 0.625 | 0.000 | 0.000 | 7.43 | 0.210 |
| 319.91 | 97.51 | 6.941 | 0.645 | 0.000 | 0.000 | 7.65 | 0.217 |
| 319.95 | 97.52 | 7.154 | 0.665 | 0.000 | 0.000 | 7.88 | 0.223 |
| 319.98 | 97.53 | 7.368 | 0.685 | 0.000 | 0.000 | 8.12 | 0.230 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) | |
| **320.01** | **97.54** | **7.587** | **0.705** | **0.000** | **0.000** | **8.37** | **0.237** | **DSL** |
| 320.05 | 97.55 | 7.809 | 0.725 | 0.253 | 0.007 | 8.62 | 0.244 | |
| 320.08 | 97.56 | 8.025 | 0.746 | 0.512 | 0.015 | 8.88 | 0.251 | |
| 320.11 | 97.57 | 8.241 | 0.766 | 0.779 | 0.022 | 9.15 | 0.259 | |
| 320.14 | 97.58 | 8.469 | 0.787 | 1.053 | 0.030 | 9.42 | 0.267 | |
| 320.18 | 97.59 | 8.697 | 0.808 | 1.335 | 0.038 | 9.70 | 0.275 | |
| 320.21 | 97.6 | 8.937 | 0.830 | 1.624 | 0.046 | 9.99 | 0.283 | |
| 320.24 | 97.61 | 9.194 | 0.854 | 1.921 | 0.054 | 10.29 | 0.291 | |
| 320.28 | 97.62 | 9.443 | 0.877 | 2.227 | 0.063 | 10.59 | 0.300 | |
| 320.31 | 97.63 | 9.701 | 0.901 | 2.541 | 0.072 | 10.91 | 0.309 | |
| 320.34 | 97.64 | 9.959 | 0.925 | 2.864 | 0.081 | 11.23 | 0.318 | |
| 320.37 | 97.65 | 10.213 | 0.949 | 3.195 | 0.090 | 11.56 | 0.327 | |
| 320.41 | 97.66 | 10.453 | 0.971 | 3.534 | 0.100 | 11.90 | 0.337 | |
| 320.44 | 97.67 | 10.698 | 0.994 | 3.881 | 0.110 | 12.25 | 0.347 | |
| 320.47 | 97.68 | 10.945 | 1.017 | 4.236 | 0.120 | 12.60 | 0.357 | |
| 320.51 | 97.69 | 11.191 | 1.040 | 4.599 | 0.130 | 12.97 | 0.367 | |
| 320.54 | 97.7 | 11.436 | 1.062 | 4.970 | 0.141 | 13.34 | 0.378 | |
| 320.57 | 97.71 | 11.693 | 1.086 | 5.349 | 0.151 | 13.72 | 0.388 | |
| 320.60 | 97.72 | 11.953 | 1.110 | 5.737 | 0.162 | 14.10 | 0.399 | |
| 320.64 | 97.73 | 12.221 | 1.135 | 6.134 | 0.174 | 14.50 | 0.411 | |
| 320.67 | 97.74 | 12.484 | 1.160 | 6.539 | 0.185 | 14.91 | 0.422 | |
| 320.70 | 97.75 | 12.751 | 1.185 | 6.953 | 0.197 | 15.32 | 0.434 | |
| 320.73 | 97.76 | 13.028 | 1.210 | 7.376 | 0.209 | 15.74 | 0.446 | |
| 320.77 | 97.77 | 13.301 | 1.236 | 7.808 | 0.221 | 16.18 | 0.458 | |
| 320.80 | 97.78 | 13.596 | 1.263 | 8.249 | 0.234 | 16.62 | 0.471 | |
| 320.83 | 97.79 | 13.908 | 1.292 | 8.700 | 0.246 | 17.07 | 0.483 | |
| 320.87 | 97.8 | 14.253 | 1.324 | 9.162 | 0.259 | 17.53 | 0.496 | |
| 320.90 | 97.81 | 14.617 | 1.358 | 9.635 | 0.273 | 18.00 | 0.510 | |
| 320.93 | 97.82 | 14.975 | 1.391 | 10.121 | 0.287 | 18.49 | 0.524 | |
| 320.96 | 97.83 | 15.320 | 1.423 | 10.618 | 0.301 | 18.99 | 0.538 | |
| 321.00 | 97.84 | 15.654 | 1.454 | 11.126 | 0.315 | 19.49 | 0.552 | |
| 321.03 | 97.85 | 15.983 | 1.485 | 11.645 | 0.330 | 20.01 | 0.567 | |
| 321.06 | 97.86 | 16.306 | 1.515 | 12.174 | 0.345 | 20.54 | 0.582 | |
| 321.10 | 97.87 | 16.642 | 1.546 | 12.715 | 0.360 | 21.08 | 0.597 | |
| 321.13 | 97.88 | 16.992 | 1.579 | 13.266 | 0.376 | 21.63 | 0.613 | |
| 321.16 | 97.89 | 17.358 | 1.613 | 13.830 | 0.392 | 22.20 | 0.629 | |
| 321.19 | 97.9 | 17.720 | 1.646 | 14.405 | 0.408 | 22.77 | 0.645 | |
| 321.23 | 97.91 | 18.107 | 1.682 | 14.993 | 0.425 | 23.36 | 0.661 | |
| 321.26 | 97.92 | 18.539 | 1.722 | 15.594 | 0.442 | 23.96 | 0.679 | |
| 321.29 | 97.93 | 18.986 | 1.764 | 16.209 | 0.459 | 24.58 | 0.696 | |
| 321.33 | 97.94 | 19.444 | 1.806 | 16.839 | 0.477 | 25.21 | 0.714 | |
| 321.36 | 97.95 | 19.900 | 1.849 | 17.485 | 0.495 | 25.85 | 0.732 | |
| 321.39 | 97.96 | 20.366 | 1.892 | 18.145 | 0.514 | 26.51 | 0.751 | |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 321.42 | 97.97 | 20.833 | 1.935 | 18.821 | 0.533 | 27.19 | 0.770 |
| 321.46 | 97.98 | 21.372 | 1.986 | 19.513 | 0.553 | 27.88 | 0.789 |
| 321.49 | 97.99 | 21.943 | 2.039 | 20.223 | 0.573 | 28.59 | 0.810 |
| 321.52 | 98 | 22.460 | 2.087 | 20.952 | 0.593 | 29.32 | 0.830 |
| 321.56 | 98.01 | 22.943 | 2.131 | 21.697 | 0.614 | 30.06 | 0.851 |
| 321.59 | 98.02 | 23.438 | 2.177 | 22.457 | 0.636 | 30.83 | 0.873 |
| 321.62 | 98.03 | 23.956 | 2.226 | 23.235 | 0.658 | 31.60 | 0.895 |
| 321.65 | 98.04 | 24.492 | 2.275 | 24.029 | 0.680 | 32.40 | 0.917 |
| 321.69 | 98.05 | 25.010 | 2.323 | 24.841 | 0.703 | 33.21 | 0.940 |
| 321.72 | 98.06 | 25.542 | 2.373 | 25.671 | 0.727 | 34.04 | 0.964 |
| 321.75 | 98.07 | 26.058 | 2.421 | 26.517 | 0.751 | 34.88 | 0.988 |
| 321.78 | 98.08 | 26.560 | 2.468 | 27.380 | 0.775 | 35.75 | 1.012 |
| 321.82 | 98.09 | 27.050 | 2.513 | 28.260 | 0.800 | 36.63 | 1.037 |
| 321.85 | 98.1 | 27.529 | 2.558 | 29.155 | 0.826 | 37.52 | 1.063 |
| 321.88 | 98.11 | 27.985 | 2.600 | 30.066 | 0.851 | 38.43 | 1.088 |
| 321.92 | 98.12 | 28.435 | 2.642 | 30.991 | 0.878 | 39.36 | 1.115 |
| 321.95 | 98.13 | 28.884 | 2.683 | 31.931 | 0.904 | 40.30 | 1.141 |
| 321.98 | 98.14 | 29.319 | 2.724 | 32.886 | 0.931 | 41.25 | 1.168 |
| 322.01 | 98.15 | 29.723 | 2.761 | 33.855 | 0.959 | 42.22 | 1.196 |
| 322.05 | 98.16 | 30.119 | 2.798 | 34.836 | 0.986 | 43.20 | 1.223 |
| 322.08 | 98.17 | 30.527 | 2.836 | 35.831 | 1.015 | 44.20 | 1.252 |
| 322.11 | 98.18 | 30.909 | 2.872 | 36.839 | 1.043 | 45.21 | 1.280 |
| 322.15 | 98.19 | 31.273 | 2.905 | 37.859 | 1.072 | 46.23 | 1.309 |
| 322.18 | 98.2 | 31.637 | 2.939 | 38.891 | 1.101 | 47.26 | 1.338 |
| 322.21 | 98.21 | 32.010 | 2.974 | 39.935 | 1.131 | 48.30 | 1.368 |
| 322.24 | 98.22 | 32.373 | 3.008 | 40.991 | 1.161 | 49.36 | 1.398 |
| 322.28 | 98.23 | 32.726 | 3.040 | 42.059 | 1.191 | 50.43 | 1.428 |
| 322.31 | 98.24 | 33.067 | 3.072 | 43.138 | 1.222 | 51.51 | 1.458 |
| 322.34 | 98.25 | 33.407 | 3.104 | 44.229 | 1.252 | 52.60 | 1.489 |
| 322.38 | 98.26 | 33.735 | 3.134 | 45.330 | 1.284 | 53.70 | 1.521 |
| 322.41 | 98.27 | 34.067 | 3.165 | 46.442 | 1.315 | 54.81 | 1.552 |
| 322.44 | 98.28 | 34.413 | 3.197 | 47.565 | 1.347 | 55.93 | 1.584 |
| 322.47 | 98.29 | 34.763 | 3.230 | 48.700 | 1.379 | 57.07 | 1.616 |
| 322.51 | 98.3 | 35.113 | 3.262 | 49.846 | 1.411 | 58.21 | 1.648 |
| 322.54 | 98.31 | 35.449 | 3.293 | 51.004 | 1.444 | 59.37 | 1.681 |
| 322.57 | 98.32 | 35.787 | 3.325 | 52.172 | 1.477 | 60.54 | 1.714 |
| 322.60 | 98.33 | 36.136 | 3.357 | 53.352 | 1.511 | 61.72 | 1.748 |
| 322.64 | 98.34 | 36.488 | 3.390 | 54.543 | 1.544 | 62.91 | 1.781 |
| 322.67 | 98.35 | 36.830 | 3.422 | 55.746 | 1.579 | 64.11 | 1.815 |
| 322.70 | 98.36 | 37.168 | 3.453 | 56.960 | 1.613 | 65.33 | 1.850 |
| 322.74 | 98.37 | 37.520 | 3.486 | 58.185 | 1.648 | 66.55 | 1.885 |
| 322.77 | 98.38 | 37.881 | 3.519 | 59.422 | 1.683 | 67.79 | 1.920 |
| 322.80 | 98.39 | 38.233 | 3.552 | 60.671 | 1.718 | 69.04 | 1.955 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 322.83 | 98.4 | 38.591 | 3.585 | 61.931 | 1.754 | 70.30 | 1.991 |
| 322.87 | 98.41 | 38.937 | 3.617 | 63.203 | 1.790 | 71.57 | 2.027 |
| 322.90 | 98.42 | 39.265 | 3.648 | 64.485 | 1.826 | 72.85 | 2.063 |
| 322.93 | 98.43 | 39.593 | 3.678 | 65.779 | 1.863 | 74.15 | 2.100 |
| 322.97 | 98.44 | 39.920 | 3.709 | 67.083 | 1.900 | 75.45 | 2.137 |
| 323.00 | 98.45 | 40.257 | 3.740 | 68.399 | 1.937 | 76.77 | 2.174 |
| 323.03 | 98.46 | 40.603 | 3.772 | 69.725 | 1.974 | 78.09 | 2.211 |
| 323.06 | 98.47 | 40.945 | 3.804 | 71.063 | 2.012 | 79.43 | 2.249 |
| 323.10 | 98.48 | 41.293 | 3.836 | 72.412 | 2.050 | 80.78 | 2.287 |
| 323.13 | 98.49 | 41.641 | 3.869 | 73.772 | 2.089 | 82.14 | 2.326 |
| 323.16 | 98.5 | 41.985 | 3.901 | 75.144 | 2.128 | 83.51 | 2.365 |
| 323.20 | 98.51 | 42.328 | 3.932 | 76.527 | 2.167 | 84.89 | 2.404 |
| 323.23 | 98.52 | 42.659 | 3.963 | 77.921 | 2.206 | 86.29 | 2.443 |
| 323.26 | 98.53 | 42.983 | 3.993 | 79.326 | 2.246 | 87.69 | 2.483 |
| 323.29 | 98.54 | 43.290 | 4.022 | 80.741 | 2.286 | 89.11 | 2.523 |
| 323.33 | 98.55 | 43.592 | 4.050 | 82.166 | 2.327 | 90.53 | 2.564 |
| 323.36 | 98.56 | 43.895 | 4.078 | 83.602 | 2.367 | 91.97 | 2.604 |
| 323.39 | 98.57 | 44.200 | 4.106 | 85.047 | 2.408 | 93.41 | 2.645 |
| 323.43 | 98.58 | 44.500 | 4.134 | 86.502 | 2.449 | 94.87 | 2.686 |
| 323.46 | 98.59 | 44.796 | 4.162 | 87.967 | 2.491 | 96.33 | 2.728 |
| 323.49 | 98.6 | 45.074 | 4.188 | 89.441 | 2.533 | 97.81 | 2.770 |
| 323.52 | 98.61 | 45.356 | 4.214 | 90.924 | 2.575 | 99.29 | 2.812 |
| 323.56 | 98.62 | 45.634 | 4.240 | 92.417 | 2.617 | 100.78 | 2.854 |
| 323.59 | 98.63 | 45.921 | 4.266 | 93.919 | 2.659 | 102.29 | 2.896 |
| 323.62 | 98.64 | 46.208 | 4.293 | 95.430 | 2.702 | 103.80 | 2.939 |
| 323.65 | 98.65 | 46.511 | 4.321 | 96.951 | 2.745 | 105.32 | 2.982 |
| 323.69 | 98.66 | 46.818 | 4.350 | 98.482 | 2.789 | 106.85 | 3.026 |
| 323.72 | 98.67 | 47.118 | 4.377 | 100.023 | 2.832 | 108.39 | 3.069 |
| 323.75 | 98.68 | 47.419 | 4.405 | 101.574 | 2.876 | 109.94 | 3.113 |
| 323.79 | 98.69 | 47.707 | 4.432 | 103.134 | 2.920 | 111.50 | 3.157 |
| 323.82 | 98.7 | 47.993 | 4.459 | 104.704 | 2.965 | 113.07 | 3.202 |
| 323.85 | 98.71 | 48.274 | 4.485 | 106.283 | 3.010 | 114.65 | 3.247 |
| 323.88 | 98.72 | 48.550 | 4.510 | 107.871 | 3.055 | 116.24 | 3.292 |
| 323.92 | 98.73 | 48.829 | 4.536 | 109.469 | 3.100 | 117.84 | 3.337 |
| 323.95 | 98.74 | 49.108 | 4.562 | 111.075 | 3.145 | 119.44 | 3.382 |
| 323.98 | 98.75 | 49.388 | 4.588 | 112.691 | 3.191 | 121.06 | 3.428 |
| 324.02 | 98.76 | 49.675 | 4.615 | 114.316 | 3.237 | 122.68 | 3.474 |
| 324.05 | 98.77 | 49.968 | 4.642 | 115.951 | 3.283 | 124.32 | 3.520 |
| 324.08 | 98.78 | 50.278 | 4.671 | 117.595 | 3.330 | 125.96 | 3.567 |
| 324.11 | 98.79 | 50.599 | 4.701 | 119.250 | 3.377 | 127.62 | 3.614 |
| 324.15 | 98.8 | 50.907 | 4.729 | 120.915 | 3.424 | 129.28 | 3.661 |
| 324.18 | 98.81 | 51.208 | 4.757 | 122.590 | 3.471 | 130.96 | 3.708 |
| 324.21 | 98.82 | 51.514 | 4.786 | 124.275 | 3.519 | 132.64 | 3.756 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 324.25 | 98.83 | 51.806 | 4.813 | 125.970 | 3.567 | 134.34 | 3.804 |
| 324.28 | 98.84 | 52.100 | 4.840 | 127.675 | 3.615 | 136.04 | 3.852 |
| 324.31 | 98.85 | 52.390 | 4.867 | 129.389 | 3.664 | 137.76 | 3.901 |
| 324.34 | 98.86 | 52.686 | 4.895 | 131.112 | 3.713 | 139.48 | 3.950 |
| 324.38 | 98.87 | 52.976 | 4.922 | 132.846 | 3.762 | 141.21 | 3.999 |
| 324.41 | 98.88 | 53.252 | 4.947 | 134.588 | 3.811 | 142.96 | 4.048 |
| 324.44 | 98.89 | 53.525 | 4.973 | 136.340 | 3.861 | 144.71 | 4.098 |
| 324.48 | 98.9 | 53.810 | 4.999 | 138.101 | 3.911 | 146.47 | 4.148 |
| 324.51 | 98.91 | 54.122 | 5.028 | 139.871 | 3.961 | 148.24 | 4.198 |
| 324.54 | 98.92 | 54.445 | 5.058 | 141.652 | 4.011 | 150.02 | 4.248 |
| 324.57 | 98.93 | 54.745 | 5.086 | 143.443 | 4.062 | 151.81 | 4.299 |
| 324.61 | 98.94 | 55.040 | 5.113 | 145.244 | 4.113 | 153.61 | 4.350 |
| 324.64 | 98.95 | 55.338 | 5.141 | 147.055 | 4.164 | 155.42 | 4.401 |
| 324.67 | 98.96 | 55.637 | 5.169 | 148.875 | 4.216 | 157.24 | 4.453 |
| 324.70 | 98.97 | 55.934 | 5.196 | 150.705 | 4.267 | 159.07 | 4.504 |
| 324.74 | 98.98 | 56.240 | 5.225 | 152.545 | 4.320 | 160.91 | 4.557 |
| 324.77 | 98.99 | 56.521 | 5.251 | 154.395 | 4.372 | 162.76 | 4.609 |
| 324.80 | 99 | 56.789 | 5.276 | 156.254 | 4.425 | 164.62 | 4.662 |
| 324.84 | 99.01 | 57.053 | 5.300 | 158.121 | 4.477 | 166.49 | 4.714 |
| 324.87 | 99.02 | 57.305 | 5.324 | 159.997 | 4.531 | 168.37 | 4.768 |
| 324.90 | 99.03 | 57.563 | 5.348 | 161.882 | 4.584 | 170.25 | 4.821 |
| 324.93 | 99.04 | 57.839 | 5.373 | 163.775 | 4.638 | 172.14 | 4.875 |
| 324.97 | 99.05 | 58.102 | 5.398 | 165.677 | 4.691 | 174.04 | 4.928 |
| 325.00 | 99.06 | 58.347 | 5.421 | 167.587 | 4.746 | 175.95 | 4.982 |
| 325.03 | 99.07 | 58.586 | 5.443 | 169.505 | 4.800 | 177.87 | 5.037 |
| 325.07 | 99.08 | 58.820 | 5.465 | 171.431 | 4.854 | 179.80 | 5.091 |
| 325.10 | 99.09 | 59.061 | 5.487 | 173.365 | 4.909 | 181.73 | 5.146 |
| 325.13 | 99.1 | 59.307 | 5.510 | 175.306 | 4.964 | 183.67 | 5.201 |
| 325.16 | 99.11 | 59.567 | 5.534 | 177.256 | 5.019 | 185.62 | 5.256 |
| 325.20 | 99.12 | 59.809 | 5.556 | 179.215 | 5.075 | 187.58 | 5.312 |
| 325.23 | 99.13 | 60.040 | 5.578 | 181.181 | 5.130 | 189.55 | 5.367 |
| 325.26 | 99.14 | 60.271 | 5.599 | 183.154 | 5.186 | 191.52 | 5.423 |
| 325.30 | 99.15 | 60.510 | 5.622 | 185.136 | 5.242 | 193.50 | 5.479 |
| 325.33 | 99.16 | 60.755 | 5.644 | 187.125 | 5.299 | 195.49 | 5.536 |
| 325.36 | 99.17 | 60.999 | 5.667 | 189.122 | 5.355 | 197.49 | 5.592 |
| 325.39 | 99.18 | 61.234 | 5.689 | 191.127 | 5.412 | 199.49 | 5.649 |
| 325.43 | 99.19 | 61.463 | 5.710 | 193.140 | 5.469 | 201.51 | 5.706 |
| 325.46 | 99.2 | 61.695 | 5.732 | 195.160 | 5.526 | 203.53 | 5.763 |
| 325.49 | 99.21 | 61.929 | 5.753 | 197.188 | 5.584 | 205.56 | 5.821 |
| 325.52 | 99.22 | 62.166 | 5.775 | 199.224 | 5.641 | 207.59 | 5.878 |
| 325.56 | 99.23 | 62.404 | 5.798 | 201.267 | 5.699 | 209.64 | 5.936 |
| 325.59 | 99.24 | 62.638 | 5.819 | 203.319 | 5.757 | 211.69 | 5.994 |
| 325.62 | 99.25 | 62.875 | 5.841 | 205.378 | 5.816 | 213.75 | 6.053 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 325.66 | 99.26 | 63.120 | 5.864 | 207.444 | 5.874 | 215.81 | 6.111 |
| 325.69 | 99.27 | 63.364 | 5.887 | 209.519 | 5.933 | 217.89 | 6.170 |
| 325.72 | 99.28 | 63.605 | 5.909 | 211.602 | 5.992 | 219.97 | 6.229 |
| 325.75 | 99.29 | 63.855 | 5.932 | 213.693 | 6.051 | 222.06 | 6.288 |
| 325.79 | 99.3 | 64.109 | 5.956 | 215.792 | 6.111 | 224.16 | 6.347 |
| 325.82 | 99.31 | 64.379 | 5.981 | 217.900 | 6.170 | 226.27 | 6.407 |
| 325.85 | 99.32 | 64.659 | 6.007 | 220.017 | 6.230 | 228.38 | 6.467 |
| 325.89 | 99.33 | 64.931 | 6.032 | 222.142 | 6.290 | 230.51 | 6.527 |
| 325.92 | 99.34 | 65.208 | 6.058 | 224.277 | 6.351 | 232.64 | 6.588 |
| 325.95 | 99.35 | 65.491 | 6.084 | 226.421 | 6.412 | 234.79 | 6.648 |
| 325.98 | 99.36 | 65.769 | 6.110 | 228.574 | 6.472 | 236.94 | 6.709 |
| 326.02 | 99.37 | 66.046 | 6.136 | 230.737 | 6.534 | 239.10 | 6.771 |
| 326.05 | 99.38 | 66.325 | 6.162 | 232.908 | 6.595 | 241.28 | 6.832 |
| 326.08 | 99.39 | 66.604 | 6.188 | 235.089 | 6.657 | 243.46 | 6.894 |
| 326.12 | 99.4 | 66.875 | 6.213 | 237.278 | 6.719 | 245.65 | 6.956 |
| 326.15 | 99.41 | 67.155 | 6.239 | 239.477 | 6.781 | 247.84 | 7.018 |
| 326.18 | 99.42 | 67.434 | 6.265 | 241.685 | 6.844 | 250.05 | 7.081 |
| 326.21 | 99.43 | 67.715 | 6.291 | 243.902 | 6.907 | 252.27 | 7.143 |
| 326.25 | 99.44 | 67.983 | 6.316 | 246.128 | 6.970 | 254.50 | 7.206 |
| 326.28 | 99.45 | 68.257 | 6.341 | 248.363 | 7.033 | 256.73 | 7.270 |
| 326.31 | 99.46 | 68.529 | 6.367 | 250.606 | 7.096 | 258.97 | 7.333 |
| 326.35 | 99.47 | 68.811 | 6.393 | 252.859 | 7.160 | 261.23 | 7.397 |
| 326.38 | 99.48 | 69.078 | 6.418 | 255.121 | 7.224 | 263.49 | 7.461 |
| 326.41 | 99.49 | 69.352 | 6.443 | 257.392 | 7.289 | 265.76 | 7.525 |
| 326.44 | 99.5 | 69.619 | 6.468 | 259.672 | 7.353 | 268.04 | 7.590 |
| 326.48 | 99.51 | 69.892 | 6.493 | 261.960 | 7.418 | 270.33 | 7.655 |
| 326.51 | 99.52 | 70.174 | 6.519 | 264.258 | 7.483 | 272.63 | 7.720 |
| 326.54 | 99.53 | 70.454 | 6.545 | 266.565 | 7.548 | 274.93 | 7.785 |
| 326.57 | 99.54 | 70.732 | 6.571 | 268.881 | 7.614 | 277.25 | 7.851 |
| 326.61 | 99.55 | 71.021 | 6.598 | 271.206 | 7.680 | 279.57 | 7.917 |
| 326.64 | 99.56 | 71.328 | 6.627 | 273.541 | 7.746 | 281.91 | 7.983 |
| 326.67 | 99.57 | 71.643 | 6.656 | 275.887 | 7.812 | 284.25 | 8.049 |
| 326.71 | 99.58 | 71.963 | 6.686 | 278.242 | 7.879 | 286.61 | 8.116 |
| 326.74 | 99.59 | 72.276 | 6.715 | 280.608 | 7.946 | 288.98 | 8.183 |
| 326.77 | 99.6 | 72.575 | 6.742 | 282.984 | 8.013 | 291.35 | 8.250 |
| 326.80 | 99.61 | 72.871 | 6.770 | 285.370 | 8.081 | 293.74 | 8.318 |
| 326.84 | 99.62 | 73.161 | 6.797 | 287.766 | 8.149 | 296.13 | 8.386 |
| 326.87 | 99.63 | 73.453 | 6.824 | 290.171 | 8.217 | 298.54 | 8.454 |
| 326.90 | 99.64 | 73.746 | 6.851 | 292.586 | 8.285 | 300.95 | 8.522 |
| 326.94 | 99.65 | 74.051 | 6.880 | 295.010 | 8.354 | 303.38 | 8.591 |
| 326.97 | 99.66 | 74.354 | 6.908 | 297.445 | 8.423 | 305.81 | 8.660 |
| 327.00 | 99.67 | 74.658 | 6.936 | 299.889 | 8.492 | 308.26 | 8.729 |
| 327.03 | 99.68 | 74.973 | 6.965 | 302.344 | 8.561 | 310.71 | 8.798 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 327.07 | 99.69 | 75.289 | 6.995 | 304.808 | 8.631 | 313.18 | 8.868 |
| 327.10 | 99.7 | 75.608 | 7.024 | 307.284 | 8.701 | 315.65 | 8.938 |
| 327.13 | 99.71 | 75.927 | 7.054 | 309.769 | 8.772 | 318.14 | 9.009 |
| 327.17 | 99.72 | 76.246 | 7.084 | 312.266 | 8.842 | 320.63 | 9.079 |
| 327.20 | 99.73 | 76.564 | 7.113 | 314.772 | 8.913 | 323.14 | 9.150 |
| 327.23 | 99.74 | 76.870 | 7.141 | 317.289 | 8.985 | 325.66 | 9.222 |
| 327.26 | 99.75 | 77.165 | 7.169 | 319.816 | 9.056 | 328.18 | 9.293 |
| 327.30 | 99.76 | 77.460 | 7.196 | 322.353 | 9.128 | 330.72 | 9.365 |
| 327.33 | 99.77 | 77.748 | 7.223 | 324.899 | 9.200 | 333.27 | 9.437 |
| 327.36 | 99.78 | 78.047 | 7.251 | 327.454 | 9.272 | 335.82 | 9.509 |
| 327.40 | 99.79 | 78.345 | 7.278 | 330.020 | 9.345 | 338.39 | 9.582 |
| 327.43 | 99.8 | 78.645 | 7.306 | 332.595 | 9.418 | 340.96 | 9.655 |
| 327.46 | 99.81 | 78.941 | 7.334 | 335.180 | 9.491 | 343.55 | 9.728 |
| 327.49 | 99.82 | 79.245 | 7.362 | 337.775 | 9.565 | 346.14 | 9.802 |
| 327.53 | 99.83 | 79.556 | 7.391 | 340.380 | 9.638 | 348.75 | 9.875 |
| 327.56 | 99.84 | 79.880 | 7.421 | 342.995 | 9.713 | 351.36 | 9.949 |
| 327.59 | 99.85 | 80.211 | 7.452 | 345.622 | 9.787 | 353.99 | 10.024 |
| 327.62 | 99.86 | 80.559 | 7.484 | 348.259 | 9.862 | 356.63 | 10.099 |
| 327.66 | 99.87 | 80.919 | 7.518 | 350.908 | 9.937 | 359.28 | 10.174 |
| 327.69 | 99.88 | 81.276 | 7.551 | 353.568 | 10.012 | 361.94 | 10.249 |
| 327.72 | 99.89 | 81.636 | 7.584 | 356.241 | 10.088 | 364.61 | 10.325 |
| 327.76 | 99.9 | 81.999 | 7.618 | 358.925 | 10.164 | 367.29 | 10.401 |
| 327.79 | 99.91 | 82.355 | 7.651 | 361.621 | 10.240 | 369.99 | 10.477 |
| 327.82 | 99.92 | 82.716 | 7.685 | 364.329 | 10.317 | 372.70 | 10.554 |
| 327.85 | 99.93 | 83.070 | 7.717 | 367.049 | 10.394 | 375.42 | 10.631 |
| 327.89 | 99.94 | 83.420 | 7.750 | 369.780 | 10.471 | 378.15 | 10.708 |
| 327.92 | 99.95 | 83.769 | 7.782 | 372.522 | 10.549 | 380.89 | 10.786 |
| 327.95 | 99.96 | 84.111 | 7.814 | 375.276 | 10.627 | 383.64 | 10.864 |
| 327.99 | 99.97 | 84.460 | 7.847 | 378.042 | 10.705 | 386.41 | 10.942 |
| 328.02 | 99.98 | 84.795 | 7.878 | 380.818 | 10.784 | 389.19 | 11.020 |
| 328.05 | 99.99 | 85.129 | 7.909 | 383.605 | 10.862 | 391.97 | 11.099 |
| 328.08 | 100 | 85.466 | 7.940 | 386.404 | 10.942 | 394.77 | 11.179 |
| 328.12 | 100.01 | 85.800 | 7.971 | 389.213 | 11.021 | 397.58 | 11.258 |
| 328.15 | 100.02 | 86.149 | 8.004 | 392.034 | 11.101 | 400.40 | 11.338 |
| 328.18 | 100.03 | 86.491 | 8.035 | 394.866 | 11.181 | 403.23 | 11.418 |
| 328.22 | 100.04 | 86.826 | 8.066 | 397.709 | 11.262 | 406.08 | 11.499 |
| 328.25 | 100.05 | 87.163 | 8.098 | 400.563 | 11.343 | 408.93 | 11.580 |
| 328.28 | 100.06 | 87.500 | 8.129 | 403.429 | 11.424 | 411.80 | 11.661 |
| 328.31 | 100.07 | 87.829 | 8.160 | 406.305 | 11.505 | 414.67 | 11.742 |
| 328.35 | 100.08 | 88.157 | 8.190 | 409.192 | 11.587 | 417.56 | 11.824 |
| 328.38 | 100.09 | 88.487 | 8.221 | 412.089 | 11.669 | 420.46 | 11.906 |
| 328.41 | 100.1 | 88.818 | 8.251 | 414.998 | 11.751 | 423.37 | 11.988 |
| 328.44 | 100.11 | 89.151 | 8.282 | 417.917 | 11.834 | 426.28 | 12.071 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 328.48 | 100.12 | 89.489 | 8.314 | 420.848 | 11.917 | 429.22 | 12.154 |
| 328.51 | 100.13 | 89.824 | 8.345 | 423.789 | 12.000 | 432.16 | 12.237 |
| 328.54 | 100.14 | 90.153 | 8.376 | 426.741 | 12.084 | 435.11 | 12.321 |
| 328.58 | 100.15 | 90.484 | 8.406 | 429.705 | 12.168 | 438.07 | 12.405 |
| 328.61 | 100.16 | 90.807 | 8.436 | 432.678 | 12.252 | 441.05 | 12.489 |
| 328.64 | 100.17 | 91.126 | 8.466 | 435.663 | 12.337 | 444.03 | 12.574 |
| 328.67 | 100.18 | 91.442 | 8.495 | 438.658 | 12.421 | 447.03 | 12.658 |
| 328.71 | 100.19 | 91.755 | 8.524 | 441.663 | 12.506 | 450.03 | 12.743 |
| 328.74 | 100.2 | 92.070 | 8.554 | 444.678 | 12.592 | 453.05 | 12.829 |
| 328.77 | 100.21 | 92.391 | 8.583 | 447.704 | 12.678 | 456.07 | 12.915 |
| 328.81 | 100.22 | 92.715 | 8.613 | 450.741 | 12.764 | 459.11 | 13.000 |
| 328.84 | 100.23 | 93.049 | 8.645 | 453.788 | 12.850 | 462.16 | 13.087 |
| 328.87 | 100.24 | 93.387 | 8.676 | 456.846 | 12.936 | 465.21 | 13.173 |
| 328.90 | 100.25 | 93.728 | 8.708 | 459.916 | 13.023 | 468.28 | 13.260 |
| 328.94 | 100.26 | 94.060 | 8.738 | 462.996 | 13.111 | 471.36 | 13.348 |
| 328.97 | 100.27 | 94.382 | 8.768 | 466.088 | 13.198 | 474.46 | 13.435 |
| 329.00 | 100.28 | 94.707 | 8.799 | 469.189 | 13.286 | 477.56 | 13.523 |
| 329.04 | 100.29 | 95.031 | 8.829 | 472.302 | 13.374 | 480.67 | 13.611 |
| 329.07 | 100.3 | 95.362 | 8.859 | 475.425 | 13.463 | 483.79 | 13.699 |
| 329.10 | 100.31 | 95.686 | 8.890 | 478.559 | 13.551 | 486.93 | 13.788 |
| 329.13 | 100.32 | 96.013 | 8.920 | 481.704 | 13.640 | 490.07 | 13.877 |
| 329.17 | 100.33 | 96.336 | 8.950 | 484.859 | 13.730 | 493.23 | 13.967 |
| 329.20 | 100.34 | 96.654 | 8.979 | 488.025 | 13.819 | 496.39 | 14.056 |
| 329.23 | 100.35 | 96.970 | 9.009 | 491.201 | 13.909 | 499.57 | 14.146 |
| 329.27 | 100.36 | 97.279 | 9.038 | 494.388 | 13.999 | 502.76 | 14.236 |
| 329.30 | 100.37 | 97.591 | 9.067 | 497.584 | 14.090 | 505.95 | 14.327 |
| 329.33 | 100.38 | 97.896 | 9.095 | 500.791 | 14.181 | 509.16 | 14.418 |
| 329.36 | 100.39 | 98.190 | 9.122 | 504.008 | 14.272 | 512.38 | 14.509 |
| 329.40 | 100.4 | 98.484 | 9.149 | 507.234 | 14.363 | 515.60 | 14.600 |
| 329.43 | 100.41 | 98.784 | 9.177 | 510.470 | 14.455 | 518.84 | 14.692 |
| 329.46 | 100.42 | 99.090 | 9.206 | 513.716 | 14.547 | 522.08 | 14.784 |
| 329.49 | 100.43 | 99.395 | 9.234 | 516.972 | 14.639 | 525.34 | 14.876 |
| 329.53 | 100.44 | 99.707 | 9.263 | 520.238 | 14.731 | 528.61 | 14.968 |
| 329.56 | 100.45 | 100.029 | 9.293 | 523.515 | 14.824 | 531.88 | 15.061 |
| 329.59 | 100.46 | 100.358 | 9.324 | 526.802 | 14.917 | 535.17 | 15.154 |
| 329.63 | 100.47 | 100.696 | 9.355 | 530.100 | 15.011 | 538.47 | 15.248 |
| 329.66 | 100.48 | 101.044 | 9.387 | 533.409 | 15.104 | 541.78 | 15.341 |
| 329.69 | 100.49 | 101.388 | 9.419 | 536.730 | 15.198 | 545.10 | 15.435 |
| 329.72 | 100.5 | 101.743 | 9.452 | 540.062 | 15.293 | 548.43 | 15.530 |
| 329.76 | 100.51 | 102.093 | 9.485 | 543.406 | 15.388 | 551.77 | 15.624 |
| 329.79 | 100.52 | 102.428 | 9.516 | 546.761 | 15.483 | 555.13 | 15.719 |
| 329.82 | 100.53 | 102.769 | 9.548 | 550.127 | 15.578 | 558.49 | 15.815 |
| 329.86 | 100.54 | 103.104 | 9.579 | 553.504 | 15.673 | 561.87 | 15.910 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 329.89 | 100.55 | 103.437 | 9.610 | 556.892 | 15.769 | 565.26 | 16.006 |
| 329.92 | 100.56 | 103.783 | 9.642 | 560.291 | 15.866 | 568.66 | 16.103 |
| 329.95 | 100.57 | 104.135 | 9.674 | 563.702 | 15.962 | 572.07 | 16.199 |
| 329.99 | 100.58 | 104.477 | 9.706 | 567.124 | 16.059 | 575.49 | 16.296 |
| 330.02 | 100.59 | 104.836 | 9.740 | 570.558 | 16.156 | 578.93 | 16.393 |
| 330.05 | 100.6 | 105.195 | 9.773 | 574.003 | 16.254 | 582.37 | 16.491 |
| 330.09 | 100.61 | 105.567 | 9.807 | 577.460 | 16.352 | 585.83 | 16.589 |
| 330.12 | 100.62 | 105.926 | 9.841 | 580.930 | 16.450 | 589.30 | 16.687 |
| 330.15 | 100.63 | 106.282 | 9.874 | 584.411 | 16.549 | 592.78 | 16.786 |
| 330.18 | 100.64 | 106.635 | 9.907 | 587.904 | 16.648 | 596.27 | 16.885 |
| 330.22 | 100.65 | 106.987 | 9.939 | 591.408 | 16.747 | 599.78 | 16.984 |
| 330.25 | 100.66 | 107.335 | 9.972 | 594.924 | 16.846 | 603.29 | 17.083 |
| 330.28 | 100.67 | 107.675 | 10.003 | 598.451 | 16.946 | 606.82 | 17.183 |
| 330.31 | 100.68 | 108.016 | 10.035 | 601.989 | 17.046 | 610.36 | 17.283 |
| 330.35 | 100.69 | 108.378 | 10.069 | 605.539 | 17.147 | 613.91 | 17.384 |
| 330.38 | 100.7 | 108.748 | 10.103 | 609.100 | 17.248 | 617.47 | 17.485 |
| 330.41 | 100.71 | 109.120 | 10.138 | 612.674 | 17.349 | 621.04 | 17.586 |
| 330.45 | 100.72 | 109.476 | 10.171 | 616.260 | 17.451 | 624.63 | 17.687 |
| 330.48 | 100.73 | 109.838 | 10.204 | 619.858 | 17.552 | 628.23 | 17.789 |
| 330.51 | 100.74 | 110.210 | 10.239 | 623.468 | 17.655 | 631.84 | 17.892 |
| 330.54 | 100.75 | 110.574 | 10.273 | 627.089 | 17.757 | 635.46 | 17.994 |
| 330.58 | 100.76 | 110.955 | 10.308 | 630.723 | 17.860 | 639.09 | 18.097 |
| 330.61 | 100.77 | 111.341 | 10.344 | 634.370 | 17.963 | 642.74 | 18.200 |
| 330.64 | 100.78 | 111.714 | 10.379 | 638.029 | 18.067 | 646.40 | 18.304 |
| 330.68 | 100.79 | 112.083 | 10.413 | 641.700 | 18.171 | 650.07 | 18.408 |
| 330.71 | 100.8 | 112.448 | 10.447 | 645.383 | 18.275 | 653.75 | 18.512 |
| 330.74 | 100.81 | 112.816 | 10.481 | 649.079 | 18.380 | 657.45 | 18.617 |
| 330.77 | 100.82 | 113.179 | 10.515 | 652.786 | 18.485 | 661.15 | 18.722 |
| 330.81 | 100.83 | 113.545 | 10.549 | 656.505 | 18.590 | 664.87 | 18.827 |
| 330.84 | 100.84 | 113.911 | 10.583 | 660.236 | 18.696 | 668.60 | 18.933 |
| 330.87 | 100.85 | 114.271 | 10.616 | 663.980 | 18.802 | 672.35 | 19.039 |
| 330.91 | 100.86 | 114.618 | 10.648 | 667.734 | 18.908 | 676.10 | 19.145 |
| 330.94 | 100.87 | 114.966 | 10.681 | 671.500 | 19.015 | 679.87 | 19.252 |
| 330.97 | 100.88 | 115.309 | 10.713 | 675.278 | 19.122 | 683.65 | 19.359 |
| 331.00 | 100.89 | 115.654 | 10.745 | 679.067 | 19.229 | 687.43 | 19.466 |
| 331.04 | 100.9 | 115.999 | 10.777 | 682.867 | 19.337 | 691.23 | 19.574 |
| 331.07 | 100.91 | 116.349 | 10.809 | 686.678 | 19.445 | 695.05 | 19.681 |
| 331.10 | 100.92 | 116.706 | 10.842 | 690.501 | 19.553 | 698.87 | 19.790 |
| 331.14 | 100.93 | 117.064 | 10.876 | 694.336 | 19.661 | 702.70 | 19.898 |
| 331.17 | 100.94 | 117.430 | 10.910 | 698.183 | 19.770 | 706.55 | 20.007 |
| 331.20 | 100.95 | 117.810 | 10.945 | 702.041 | 19.880 | 710.41 | 20.117 |
| 331.23 | 100.96 | 118.178 | 10.979 | 705.913 | 19.989 | 714.28 | 20.226 |
| 331.27 | 100.97 | 118.537 | 11.012 | 709.796 | 20.099 | 718.16 | 20.336 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 331.30 | 100.98 | 118.901 | 11.046 | 713.691 | 20.209 | 722.06 | 20.446 |
| 331.33 | 100.99 | 119.270 | 11.081 | 717.598 | 20.320 | 725.97 | 20.557 |
| 331.36 | 101 | 119.637 | 11.115 | 721.517 | 20.431 | 729.88 | 20.668 |
| 331.40 | 101.01 | 120.007 | 11.149 | 725.448 | 20.542 | 733.82 | 20.779 |
| 331.43 | 101.02 | 120.365 | 11.182 | 729.391 | 20.654 | 737.76 | 20.891 |
| 331.46 | 101.03 | 120.736 | 11.217 | 733.346 | 20.766 | 741.71 | 21.003 |
| 331.50 | 101.04 | 121.112 | 11.252 | 737.313 | 20.878 | 745.68 | 21.115 |
| 331.53 | 101.05 | 121.479 | 11.286 | 741.293 | 20.991 | 749.66 | 21.228 |
| 331.56 | 101.06 | 121.846 | 11.320 | 745.284 | 21.104 | 753.65 | 21.341 |
| 331.59 | 101.07 | 122.226 | 11.355 | 749.288 | 21.217 | 757.66 | 21.454 |
| 331.63 | 101.08 | 122.599 | 11.390 | 753.304 | 21.331 | 761.67 | 21.568 |
| 331.66 | 101.09 | 122.982 | 11.425 | 757.333 | 21.445 | 765.70 | 21.682 |
| 331.69 | 101.1 | 123.357 | 11.460 | 761.374 | 21.560 | 769.74 | 21.797 |
| 331.73 | 101.11 | 123.733 | 11.495 | 765.427 | 21.674 | 773.79 | 21.911 |
| 331.76 | 101.12 | 124.091 | 11.528 | 769.492 | 21.790 | 777.86 | 22.027 |
| 331.79 | 101.13 | 124.422 | 11.559 | 773.569 | 21.905 | 781.94 | 22.142 |
| 331.82 | 101.14 | 124.750 | 11.590 | 777.657 | 22.021 | 786.02 | 22.258 |
| 331.86 | 101.15 | 125.078 | 11.620 | 781.755 | 22.137 | 790.12 | 22.374 |
| 331.89 | 101.16 | 125.412 | 11.651 | 785.864 | 22.253 | 794.23 | 22.490 |
| 331.92 | 101.17 | 125.739 | 11.682 | 789.984 | 22.370 | 798.35 | 22.607 |
| 331.96 | 101.18 | 126.069 | 11.712 | 794.115 | 22.487 | 802.48 | 22.724 |
| 331.99 | 101.19 | 126.412 | 11.744 | 798.256 | 22.604 | 806.62 | 22.841 |
| 332.02 | 101.2 | 126.745 | 11.775 | 802.409 | 22.722 | 810.78 | 22.959 |
| 332.05 | 101.21 | 127.072 | 11.805 | 806.573 | 22.840 | 814.94 | 23.077 |
| 332.09 | 101.22 | 127.403 | 11.836 | 810.747 | 22.958 | 819.11 | 23.195 |
| 332.12 | 101.23 | 127.735 | 11.867 | 814.933 | 23.076 | 823.30 | 23.313 |
| 332.15 | 101.24 | 128.063 | 11.897 | 819.129 | 23.195 | 827.50 | 23.432 |
| 332.19 | 101.25 | 128.386 | 11.927 | 823.336 | 23.314 | 831.70 | 23.551 |
| 332.22 | 101.26 | 128.711 | 11.958 | 827.553 | 23.434 | 835.92 | 23.671 |
| 332.25 | 101.27 | 129.042 | 11.988 | 831.781 | 23.553 | 840.15 | 23.790 |
| 332.28 | 101.28 | 129.371 | 12.019 | 836.020 | 23.673 | 844.39 | 23.910 |
| 332.32 | 101.29 | 129.699 | 12.049 | 840.270 | 23.794 | 848.64 | 24.031 |
| 332.35 | 101.3 | 130.024 | 12.080 | 844.531 | 23.914 | 852.90 | 24.151 |
| 332.38 | 101.31 | 130.357 | 12.111 | 848.802 | 24.035 | 857.17 | 24.272 |
| 332.41 | 101.32 | 130.697 | 12.142 | 853.084 | 24.157 | 861.45 | 24.394 |
| 332.45 | 101.33 | 131.033 | 12.173 | 857.378 | 24.278 | 865.75 | 24.515 |
| 332.48 | 101.34 | 131.354 | 12.203 | 861.682 | 24.400 | 870.05 | 24.637 |
| 332.51 | 101.35 | 131.682 | 12.234 | 865.997 | 24.522 | 874.36 | 24.759 |
| 332.55 | 101.36 | 132.025 | 12.266 | 870.323 | 24.645 | 878.69 | 24.882 |
| 332.58 | 101.37 | 132.385 | 12.299 | 874.660 | 24.768 | 883.03 | 25.005 |
| 332.61 | 101.38 | 132.745 | 12.332 | 879.009 | 24.891 | 887.38 | 25.128 |
| 332.64 | 101.39 | 133.091 | 12.365 | 883.370 | 25.014 | 891.74 | 25.251 |
| 332.68 | 101.4 | 133.450 | 12.398 | 887.743 | 25.138 | 896.11 | 25.375 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 332.71 | 101.41 | 133.815 | 12.432 | 892.127 | 25.262 | 900.49 | 25.499 |
| 332.74 | 101.42 | 134.177 | 12.465 | 896.523 | 25.387 | 904.89 | 25.624 |
| 332.78 | 101.43 | 134.548 | 12.500 | 900.931 | 25.512 | 909.30 | 25.748 |
| 332.81 | 101.44 | 134.945 | 12.537 | 905.352 | 25.637 | 913.72 | 25.874 |
| 332.84 | 101.45 | 135.339 | 12.573 | 909.786 | 25.762 | 918.15 | 25.999 |
| 332.87 | 101.46 | 135.724 | 12.609 | 914.232 | 25.888 | 922.60 | 26.125 |
| 332.91 | 101.47 | 136.120 | 12.646 | 918.692 | 26.014 | 927.06 | 26.251 |
| 332.94 | 101.48 | 136.511 | 12.682 | 923.164 | 26.141 | 931.53 | 26.378 |
| 332.97 | 101.49 | 136.898 | 12.718 | 927.649 | 26.268 | 936.02 | 26.505 |
| 333.01 | 101.5 | 137.272 | 12.753 | 932.147 | 26.395 | 940.51 | 26.632 |
| 333.04 | 101.51 | 137.652 | 12.788 | 936.656 | 26.523 | 945.02 | 26.760 |
| 333.07 | 101.52 | 138.041 | 12.824 | 941.179 | 26.651 | 949.55 | 26.888 |
| 333.10 | 101.53 | 138.416 | 12.859 | 945.714 | 26.780 | 954.08 | 27.017 |
| 333.14 | 101.54 | 138.807 | 12.896 | 950.262 | 26.908 | 958.63 | 27.145 |
| 333.17 | 101.55 | 139.217 | 12.934 | 954.822 | 27.038 | 963.19 | 27.274 |
| 333.20 | 101.56 | 139.640 | 12.973 | 959.397 | 27.167 | 967.76 | 27.404 |
| 333.23 | 101.57 | 140.066 | 13.013 | 963.985 | 27.297 | 972.35 | 27.534 |
| 333.27 | 101.58 | 140.490 | 13.052 | 968.587 | 27.427 | 976.96 | 27.664 |
| 333.30 | 101.59 | 140.910 | 13.091 | 973.203 | 27.558 | 981.57 | 27.795 |
| 333.33 | 101.6 | 141.343 | 13.131 | 977.834 | 27.689 | 986.20 | 27.926 |
| 333.37 | 101.61 | 141.805 | 13.174 | 982.478 | 27.821 | 990.85 | 28.058 |
| 333.40 | 101.62 | 142.279 | 13.218 | 987.138 | 27.953 | 995.51 | 28.190 |
| 333.43 | 101.63 | 142.732 | 13.260 | 991.814 | 28.085 | 1000.18 | 28.322 |
| 333.46 | 101.64 | 143.185 | 13.302 | 996.504 | 28.218 | 1004.87 | 28.455 |
| 333.50 | 101.65 | 143.628 | 13.344 | 1001.209 | 28.351 | 1009.58 | 28.588 |
| 333.53 | 101.66 | 144.084 | 13.386 | 1005.929 | 28.485 | 1014.30 | 28.722 |
| 333.56 | 101.67 | 144.571 | 13.431 | 1010.664 | 28.619 | 1019.03 | 28.856 |
| 333.60 | 101.68 | 145.062 | 13.477 | 1015.415 | 28.753 | 1023.78 | 28.990 |
| 333.63 | 101.69 | 145.549 | 13.522 | 1020.182 | 28.888 | 1028.55 | 29.125 |
| 333.66 | 101.7 | 146.060 | 13.569 | 1024.965 | 29.024 | 1033.33 | 29.261 |
| 333.69 | 101.71 | 146.600 | 13.620 | 1029.766 | 29.160 | 1038.13 | 29.397 |
| 333.73 | 101.72 | 147.120 | 13.668 | 1034.584 | 29.296 | 1042.95 | 29.533 |
| 333.76 | 101.73 | 147.632 | 13.715 | 1039.420 | 29.433 | 1047.79 | 29.670 |
| 333.79 | 101.74 | 148.144 | 13.763 | 1044.272 | 29.570 | 1052.64 | 29.807 |
| 333.83 | 101.75 | 148.631 | 13.808 | 1049.140 | 29.708 | 1057.51 | 29.945 |
| 333.86 | 101.76 | 149.125 | 13.854 | 1054.024 | 29.847 | 1062.39 | 30.084 |
| 333.89 | 101.77 | 149.616 | 13.900 | 1058.925 | 29.985 | 1067.29 | 30.222 |
| 333.92 | 101.78 | 150.120 | 13.947 | 1063.842 | 30.125 | 1072.21 | 30.362 |
| 333.96 | 101.79 | 150.636 | 13.995 | 1068.775 | 30.264 | 1077.14 | 30.501 |
| 333.99 | 101.8 | 151.152 | 14.043 | 1073.726 | 30.404 | 1082.09 | 30.641 |
| 334.02 | 101.81 | 151.697 | 14.093 | 1078.694 | 30.545 | 1087.06 | 30.782 |
| 334.06 | 101.82 | 152.267 | 14.146 | 1083.680 | 30.686 | 1092.05 | 30.923 |
| 334.09 | 101.83 | 152.819 | 14.197 | 1088.684 | 30.828 | 1097.05 | 31.065 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 334.12 | 101.84 | 153.330 | 14.245 | 1093.707 | 30.970 | 1102.07 | 31.207 |
| 334.15 | 101.85 | 153.826 | 14.291 | 1098.745 | 31.113 | 1107.11 | 31.350 |
| 334.19 | 101.86 | 154.299 | 14.335 | 1103.800 | 31.256 | 1112.17 | 31.493 |
| 334.22 | 101.87 | 154.760 | 14.378 | 1108.870 | 31.400 | 1117.24 | 31.637 |
| 334.25 | 101.88 | 155.214 | 14.420 | 1113.955 | 31.544 | 1122.32 | 31.781 |
| 334.28 | 101.89 | 155.656 | 14.461 | 1119.054 | 31.688 | 1127.42 | 31.925 |
| 334.32 | 101.9 | 156.094 | 14.502 | 1124.168 | 31.833 | 1132.54 | 32.070 |
| 334.35 | 101.91 | 156.523 | 14.542 | 1129.296 | 31.978 | 1137.66 | 32.215 |
| 334.38 | 101.92 | 156.957 | 14.582 | 1134.439 | 32.124 | 1142.81 | 32.361 |
| 334.42 | 101.93 | 157.404 | 14.623 | 1139.596 | 32.270 | 1147.96 | 32.507 |
| 334.45 | 101.94 | 157.844 | 14.664 | 1144.767 | 32.416 | 1153.13 | 32.653 |
| 334.48 | 101.95 | 158.273 | 14.704 | 1149.953 | 32.563 | 1158.32 | 32.800 |
| 334.51 | 101.96 | 158.702 | 14.744 | 1155.152 | 32.710 | 1163.52 | 32.947 |
| 334.55 | 101.97 | 159.136 | 14.784 | 1160.366 | 32.858 | 1168.73 | 33.095 |
| 334.58 | 101.98 | 159.566 | 14.824 | 1165.594 | 33.006 | 1173.96 | 33.243 |
| 334.61 | 101.99 | 159.997 | 14.864 | 1170.836 | 33.154 | 1179.20 | 33.391 |
| 334.65 | 102 | 160.422 | 14.904 | 1176.093 | 33.303 | 1184.46 | 33.540 |
| 334.68 | 102.01 | 160.848 | 14.943 | 1181.363 | 33.452 | 1189.73 | 33.689 |
| 334.71 | 102.02 | 161.293 | 14.985 | 1186.647 | 33.602 | 1195.01 | 33.839 |
| 334.74 | 102.03 | 161.743 | 15.026 | 1191.946 | 33.752 | 1200.31 | 33.989 |
| 334.78 | 102.04 | 162.188 | 15.068 | 1197.260 | 33.903 | 1205.63 | 34.140 |
| 334.81 | 102.05 | 162.625 | 15.108 | 1202.589 | 34.053 | 1210.96 | 34.290 |
| 334.84 | 102.06 | 163.066 | 15.149 | 1207.931 | 34.205 | 1216.30 | 34.442 |
| 334.88 | 102.07 | 163.498 | 15.190 | 1213.288 | 34.356 | 1221.66 | 34.593 |
| 334.91 | 102.08 | 163.931 | 15.230 | 1218.660 | 34.509 | 1227.03 | 34.746 |
| 334.94 | 102.09 | 164.369 | 15.270 | 1224.045 | 34.661 | 1232.41 | 34.898 |
| 334.97 | 102.1 | 164.806 | 15.311 | 1229.445 | 34.814 | 1237.81 | 35.051 |
| 335.01 | 102.11 | 165.256 | 15.353 | 1234.859 | 34.967 | 1243.23 | 35.204 |
| 335.04 | 102.12 | 165.709 | 15.395 | 1240.288 | 35.121 | 1248.66 | 35.358 |
| 335.07 | 102.13 | 166.158 | 15.437 | 1245.733 | 35.275 | 1254.10 | 35.512 |
| 335.10 | 102.14 | 166.598 | 15.477 | 1251.191 | 35.430 | 1259.56 | 35.667 |
| 335.14 | 102.15 | 167.047 | 15.519 | 1256.664 | 35.585 | 1265.03 | 35.822 |
| 335.17 | 102.16 | 167.495 | 15.561 | 1262.152 | 35.740 | 1270.52 | 35.977 |
| 335.20 | 102.17 | 167.942 | 15.602 | 1267.655 | 35.896 | 1276.02 | 36.133 |
| 335.24 | 102.18 | 168.388 | 15.644 | 1273.172 | 36.052 | 1281.54 | 36.289 |
| 335.27 | 102.19 | 168.840 | 15.686 | 1278.704 | 36.209 | 1287.07 | 36.446 |
| 335.30 | 102.2 | 169.299 | 15.728 | 1284.251 | 36.366 | 1292.62 | 36.603 |
| 335.33 | 102.21 | 169.765 | 15.772 | 1289.813 | 36.523 | 1298.18 | 36.760 |
| 335.37 | 102.22 | 170.221 | 15.814 | 1295.390 | 36.681 | 1303.76 | 36.918 |
| 335.40 | 102.23 | 170.679 | 15.857 | 1300.982 | 36.840 | 1309.35 | 37.077 |
| 335.43 | 102.24 | 171.131 | 15.899 | 1306.589 | 36.998 | 1314.96 | 37.235 |
| 335.47 | 102.25 | 171.563 | 15.939 | 1312.211 | 37.158 | 1320.58 | 37.395 |
| 335.50 | 102.26 | 171.987 | 15.978 | 1317.847 | 37.317 | 1326.21 | 37.554 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 335.53 | 102.27 | 172.418 | 16.018 | 1323.496 | 37.477 | 1331.86 | 37.714 |
| 335.56 | 102.28 | 172.857 | 16.059 | 1329.160 | 37.638 | 1337.53 | 37.875 |
| 335.60 | 102.29 | 173.312 | 16.101 | 1334.839 | 37.798 | 1343.21 | 38.035 |
| 335.63 | 102.3 | 173.779 | 16.145 | 1340.532 | 37.960 | 1348.90 | 38.197 |
| 335.66 | 102.31 | 174.233 | 16.187 | 1346.241 | 38.121 | 1354.61 | 38.358 |
| 335.70 | 102.32 | 174.703 | 16.230 | 1351.965 | 38.283 | 1360.33 | 38.520 |
| 335.73 | 102.33 | 175.202 | 16.277 | 1357.705 | 38.446 | 1366.07 | 38.683 |
| 335.76 | 102.34 | 175.685 | 16.322 | 1363.461 | 38.609 | 1371.83 | 38.846 |
| 335.79 | 102.35 | 176.163 | 16.366 | 1369.233 | 38.772 | 1377.60 | 39.009 |
| 335.83 | 102.36 | 176.646 | 16.411 | 1375.020 | 38.936 | 1383.39 | 39.173 |
| 335.86 | 102.37 | 177.120 | 16.455 | 1380.824 | 39.101 | 1389.19 | 39.337 |
| 335.89 | 102.38 | 177.608 | 16.500 | 1386.643 | 39.265 | 1395.01 | 39.502 |
| 335.93 | 102.39 | 178.110 | 16.547 | 1392.478 | 39.431 | 1400.85 | 39.667 |
| 335.96 | 102.4 | 178.637 | 16.596 | 1398.330 | 39.596 | 1406.70 | 39.833 |
| 335.99 | 102.41 | 179.186 | 16.647 | 1404.200 | 39.762 | 1412.57 | 39.999 |
| 336.02 | 102.42 | 179.754 | 16.700 | 1410.088 | 39.929 | 1418.46 | 40.166 |
| 336.06 | 102.43 | 180.318 | 16.752 | 1415.994 | 40.096 | 1424.36 | 40.333 |
| 336.09 | 102.44 | 180.858 | 16.802 | 1421.919 | 40.264 | 1430.29 | 40.501 |
| 336.12 | 102.45 | 181.392 | 16.852 | 1427.861 | 40.432 | 1436.23 | 40.669 |
| 336.15 | 102.46 | 181.923 | 16.901 | 1433.821 | 40.601 | 1442.19 | 40.838 |
| 336.19 | 102.47 | 182.442 | 16.949 | 1439.798 | 40.771 | 1448.17 | 41.007 |
| 336.22 | 102.48 | 182.950 | 16.997 | 1445.792 | 40.940 | 1454.16 | 41.177 |
| 336.25 | 102.49 | 183.449 | 17.043 | 1451.803 | 41.110 | 1460.17 | 41.347 |
| 336.29 | 102.5 | 183.963 | 17.091 | 1457.830 | 41.281 | 1466.20 | 41.518 |
| 336.32 | 102.51 | 184.485 | 17.139 | 1463.874 | 41.452 | 1472.24 | 41.689 |
| 336.35 | 102.52 | 185.003 | 17.187 | 1469.935 | 41.624 | 1478.30 | 41.861 |
| 336.38 | 102.53 | 185.524 | 17.236 | 1476.013 | 41.796 | 1484.38 | 42.033 |
| 336.42 | 102.54 | 186.060 | 17.286 | 1482.109 | 41.969 | 1490.48 | 42.206 |
| 336.45 | 102.55 | 186.604 | 17.336 | 1488.222 | 42.142 | 1496.59 | 42.379 |
| 336.48 | 102.56 | 187.137 | 17.386 | 1494.353 | 42.315 | 1502.72 | 42.552 |
| 336.52 | 102.57 | 187.646 | 17.433 | 1500.501 | 42.489 | 1508.87 | 42.726 |
| 336.55 | 102.58 | 188.146 | 17.479 | 1506.665 | 42.664 | 1515.03 | 42.901 |
| 336.58 | 102.59 | 188.638 | 17.525 | 1512.846 | 42.839 | 1521.21 | 43.076 |
| 336.61 | 102.6 | 189.133 | 17.571 | 1519.043 | 43.014 | 1527.41 | 43.251 |
| 336.65 | 102.61 | 189.653 | 17.619 | 1525.257 | 43.190 | 1533.62 | 43.427 |
| 336.68 | 102.62 | 190.188 | 17.669 | 1531.487 | 43.367 | 1539.86 | 43.604 |
| 336.71 | 102.63 | 190.727 | 17.719 | 1537.736 | 43.544 | 1546.10 | 43.781 |
| 336.75 | 102.64 | 191.254 | 17.768 | 1544.002 | 43.721 | 1552.37 | 43.958 |
| 336.78 | 102.65 | 191.806 | 17.819 | 1550.286 | 43.899 | 1558.65 | 44.136 |
| 336.81 | 102.66 | 192.371 | 17.872 | 1556.588 | 44.078 | 1564.96 | 44.315 |
| 336.84 | 102.67 | 192.938 | 17.925 | 1562.908 | 44.257 | 1571.28 | 44.494 |
| 336.88 | 102.68 | 193.538 | 17.980 | 1569.248 | 44.436 | 1577.62 | 44.673 |
| 336.91 | 102.69 | 194.198 | 18.042 | 1575.608 | 44.616 | 1583.98 | 44.853 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 336.94 | 102.7 | 194.827 | 18.100 | 1581.990 | 44.797 | 1590.36 | 45.034 |
| 336.98 | 102.71 | 195.441 | 18.157 | 1588.392 | 44.978 | 1596.76 | 45.215 |
| 337.01 | 102.72 | 196.024 | 18.211 | 1594.814 | 45.160 | 1603.18 | 45.397 |
| 337.04 | 102.73 | 196.585 | 18.263 | 1601.254 | 45.342 | 1609.62 | 45.579 |
| 337.07 | 102.74 | 197.130 | 18.314 | 1607.713 | 45.525 | 1616.08 | 45.762 |
| 337.11 | 102.75 | 197.674 | 18.365 | 1614.189 | 45.709 | 1622.56 | 45.946 |
| 337.14 | 102.76 | 198.207 | 18.414 | 1620.683 | 45.893 | 1629.05 | 46.130 |
| 337.17 | 102.77 | 198.744 | 18.464 | 1627.195 | 46.077 | 1635.56 | 46.314 |
| 337.20 | 102.78 | 199.274 | 18.513 | 1633.724 | 46.262 | 1642.09 | 46.499 |
| 337.24 | 102.79 | 199.796 | 18.562 | 1640.270 | 46.447 | 1648.64 | 46.684 |
| 337.27 | 102.8 | 200.306 | 18.609 | 1646.834 | 46.633 | 1655.20 | 46.870 |
| 337.30 | 102.81 | 200.804 | 18.655 | 1653.414 | 46.819 | 1661.78 | 47.056 |
| 337.34 | 102.82 | 201.305 | 18.702 | 1660.010 | 47.006 | 1668.38 | 47.243 |
| 337.37 | 102.83 | 201.824 | 18.750 | 1666.623 | 47.193 | 1674.99 | 47.430 |
| 337.40 | 102.84 | 202.345 | 18.799 | 1673.253 | 47.381 | 1681.62 | 47.618 |
| 337.43 | 102.85 | 202.876 | 18.848 | 1679.900 | 47.569 | 1688.27 | 47.806 |
| 337.47 | 102.86 | 203.407 | 18.897 | 1686.565 | 47.758 | 1694.93 | 47.995 |
| 337.50 | 102.87 | 203.951 | 18.948 | 1693.247 | 47.947 | 1701.61 | 48.184 |
| 337.53 | 102.88 | 204.502 | 18.999 | 1699.948 | 48.137 | 1708.32 | 48.374 |
| 337.57 | 102.89 | 205.057 | 19.050 | 1706.666 | 48.327 | 1715.03 | 48.564 |
| 337.60 | 102.9 | 205.617 | 19.102 | 1713.403 | 48.518 | 1721.77 | 48.755 |
| 337.63 | 102.91 | 206.168 | 19.154 | 1720.158 | 48.709 | 1728.53 | 48.946 |
| 337.66 | 102.92 | 206.725 | 19.205 | 1726.931 | 48.901 | 1735.30 | 49.138 |
| 337.70 | 102.93 | 207.284 | 19.257 | 1733.722 | 49.094 | 1742.09 | 49.330 |
| 337.73 | 102.94 | 207.841 | 19.309 | 1740.532 | 49.286 | 1748.90 | 49.523 |
| 337.76 | 102.95 | 208.395 | 19.361 | 1747.360 | 49.480 | 1755.73 | 49.717 |
| 337.80 | 102.96 | 208.947 | 19.412 | 1754.206 | 49.674 | 1762.57 | 49.910 |
| 337.83 | 102.97 | 209.492 | 19.462 | 1761.070 | 49.868 | 1769.44 | 50.105 |
| 337.86 | 102.98 | 210.033 | 19.513 | 1767.952 | 50.063 | 1776.32 | 50.300 |
| 337.89 | 102.99 | 210.586 | 19.564 | 1774.852 | 50.258 | 1783.22 | 50.495 |
| 337.93 | 103 | 211.144 | 19.616 | 1781.770 | 50.454 | 1790.14 | 50.691 |
| 337.96 | 103.01 | 211.690 | 19.667 | 1788.707 | 50.650 | 1797.07 | 50.887 |
| 337.99 | 103.02 | 212.239 | 19.718 | 1795.661 | 50.847 | 1804.03 | 51.084 |
| 338.02 | 103.03 | 212.805 | 19.770 | 1802.633 | 51.045 | 1811.00 | 51.282 |
| 338.06 | 103.04 | 213.373 | 19.823 | 1809.624 | 51.243 | 1817.99 | 51.480 |
| 338.09 | 103.05 | 213.943 | 19.876 | 1816.634 | 51.441 | 1825.00 | 51.678 |
| 338.12 | 103.06 | 214.519 | 19.929 | 1823.663 | 51.640 | 1832.03 | 51.877 |
| 338.16 | 103.07 | 215.106 | 19.984 | 1830.710 | 51.840 | 1839.08 | 52.077 |
| 338.19 | 103.08 | 215.692 | 20.038 | 1837.777 | 52.040 | 1846.14 | 52.277 |
| 338.22 | 103.09 | 216.277 | 20.093 | 1844.863 | 52.241 | 1853.23 | 52.478 |
| 338.25 | 103.1 | 216.871 | 20.148 | 1851.969 | 52.442 | 1860.34 | 52.679 |
| 338.29 | 103.11 | 217.477 | 20.204 | 1859.094 | 52.644 | 1867.46 | 52.881 |
| 338.32 | 103.12 | 218.070 | 20.259 | 1866.239 | 52.846 | 1874.61 | 53.083 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 338.35 | 103.13 | 218.679 | 20.316 | 1873.403 | 53.049 | 1881.77 | 53.286 |
| 338.39 | 103.14 | 219.278 | 20.372 | 1880.587 | 53.252 | 1888.96 | 53.489 |
| 338.42 | 103.15 | 219.876 | 20.427 | 1887.791 | 53.456 | 1896.16 | 53.693 |
| 338.45 | 103.16 | 220.472 | 20.483 | 1895.015 | 53.661 | 1903.38 | 53.898 |
| 338.48 | 103.17 | 221.055 | 20.537 | 1902.258 | 53.866 | 1910.63 | 54.103 |
| 338.52 | 103.18 | 221.625 | 20.590 | 1909.520 | 54.072 | 1917.89 | 54.308 |
| 338.55 | 103.19 | 222.198 | 20.643 | 1916.800 | 54.278 | 1925.17 | 54.515 |
| 338.58 | 103.2 | 222.766 | 20.696 | 1924.100 | 54.484 | 1932.47 | 54.721 |
| 338.62 | 103.21 | 223.324 | 20.747 | 1931.417 | 54.692 | 1939.79 | 54.929 |
| 338.65 | 103.22 | 223.867 | 20.798 | 1938.753 | 54.899 | 1947.12 | 55.136 |
| 338.68 | 103.23 | 224.418 | 20.849 | 1946.107 | 55.108 | 1954.47 | 55.345 |
| 338.71 | 103.24 | 224.972 | 20.901 | 1953.479 | 55.316 | 1961.85 | 55.553 |
| 338.75 | 103.25 | 225.517 | 20.951 | 1960.869 | 55.526 | 1969.24 | 55.763 |
| 338.78 | 103.26 | 226.068 | 21.002 | 1968.277 | 55.735 | 1976.64 | 55.972 |
| 338.81 | 103.27 | 226.623 | 21.054 | 1975.703 | 55.946 | 1984.07 | 56.183 |
| 338.85 | 103.28 | 227.179 | 21.106 | 1983.147 | 56.156 | 1991.51 | 56.393 |
| 338.88 | 103.29 | 227.735 | 21.157 | 1990.609 | 56.368 | 1998.98 | 56.605 |
| 338.91 | 103.3 | 228.294 | 21.209 | 1998.090 | 56.580 | 2006.46 | 56.817 |
| 338.94 | 103.31 | 228.852 | 21.261 | 2005.589 | 56.792 | 2013.96 | 57.029 |
| 338.98 | 103.32 | 229.414 | 21.313 | 2013.107 | 57.005 | 2021.47 | 57.242 |
| 339.01 | 103.33 | 229.969 | 21.365 | 2020.642 | 57.218 | 2029.01 | 57.455 |
| 339.04 | 103.34 | 230.510 | 21.415 | 2028.196 | 57.432 | 2036.56 | 57.669 |
| 339.07 | 103.35 | 231.047 | 21.465 | 2035.768 | 57.646 | 2044.14 | 57.883 |
| 339.11 | 103.36 | 231.575 | 21.514 | 2043.357 | 57.861 | 2051.72 | 58.098 |
| 339.14 | 103.37 | 232.092 | 21.562 | 2050.963 | 58.077 | 2059.33 | 58.314 |
| 339.17 | 103.38 | 232.608 | 21.610 | 2058.586 | 58.293 | 2066.95 | 58.530 |
| 339.21 | 103.39 | 233.140 | 21.659 | 2066.226 | 58.509 | 2074.59 | 58.746 |
| 339.24 | 103.4 | 233.674 | 21.709 | 2073.884 | 58.726 | 2082.25 | 58.963 |
| 339.27 | 103.41 | 234.213 | 21.759 | 2081.559 | 58.943 | 2089.93 | 59.180 |
| 339.30 | 103.42 | 234.775 | 21.811 | 2089.252 | 59.161 | 2097.62 | 59.398 |
| 339.34 | 103.43 | 235.344 | 21.864 | 2096.964 | 59.379 | 2105.33 | 59.616 |
| 339.37 | 103.44 | 235.888 | 21.915 | 2104.694 | 59.598 | 2113.06 | 59.835 |
| 339.40 | 103.45 | 236.428 | 21.965 | 2112.442 | 59.818 | 2120.81 | 60.055 |
| 339.44 | 103.46 | 236.969 | 22.015 | 2120.208 | 60.038 | 2128.58 | 60.274 |
| 339.47 | 103.47 | 237.510 | 22.065 | 2127.992 | 60.258 | 2136.36 | 60.495 |
| 339.50 | 103.48 | 238.050 | 22.116 | 2135.793 | 60.479 | 2144.16 | 60.716 |
| 339.53 | 103.49 | 238.590 | 22.166 | 2143.612 | 60.700 | 2151.98 | 60.937 |
| 339.57 | 103.5 | 239.132 | 22.216 | 2151.448 | 60.922 | 2159.82 | 61.159 |
| 339.60 | 103.51 | 239.682 | 22.267 | 2159.303 | 61.145 | 2167.67 | 61.382 |
| 339.63 | 103.52 | 240.241 | 22.319 | 2167.176 | 61.368 | 2175.54 | 61.604 |
| 339.67 | 103.53 | 240.795 | 22.371 | 2175.067 | 61.591 | 2183.43 | 61.828 |
| 339.70 | 103.54 | 241.348 | 22.422 | 2182.976 | 61.815 | 2191.34 | 62.052 |
| 339.73 | 103.55 | 241.901 | 22.473 | 2190.903 | 62.039 | 2199.27 | 62.276 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 339.76 | 103.56 | 242.466 | 22.526 | 2198.849 | 62.264 | 2207.22 | 62.501 |
| 339.80 | 103.57 | 243.028 | 22.578 | 2206.813 | 62.490 | 2215.18 | 62.727 |
| 339.83 | 103.58 | 243.595 | 22.631 | 2214.795 | 62.716 | 2223.16 | 62.953 |
| 339.86 | 103.59 | 244.180 | 22.685 | 2222.797 | 62.943 | 2231.16 | 63.179 |
| 339.90 | 103.6 | 244.787 | 22.741 | 2230.818 | 63.170 | 2239.19 | 63.407 |
| 339.93 | 103.61 | 245.397 | 22.798 | 2238.859 | 63.397 | 2247.23 | 63.634 |
| 339.96 | 103.62 | 246.010 | 22.855 | 2246.920 | 63.626 | 2255.29 | 63.863 |
| 339.99 | 103.63 | 246.628 | 22.913 | 2255.001 | 63.854 | 2263.37 | 64.091 |
| 340.03 | 103.64 | 247.236 | 22.969 | 2263.103 | 64.084 | 2271.47 | 64.321 |
| 340.06 | 103.65 | 247.836 | 23.025 | 2271.224 | 64.314 | 2279.59 | 64.551 |
| 340.09 | 103.66 | 248.444 | 23.081 | 2279.365 | 64.544 | 2287.73 | 64.781 |
| 340.12 | 103.67 | 249.073 | 23.140 | 2287.526 | 64.775 | 2295.89 | 65.012 |
| 340.16 | 103.68 | 249.691 | 23.197 | 2295.708 | 65.007 | 2304.08 | 65.244 |
| 340.19 | 103.69 | 250.302 | 23.254 | 2303.910 | 65.239 | 2312.28 | 65.476 |
| 340.22 | 103.7 | 250.913 | 23.311 | 2312.132 | 65.472 | 2320.50 | 65.709 |
| 340.26 | 103.71 | 251.516 | 23.367 | 2320.374 | 65.706 | 2328.74 | 65.943 |
| 340.29 | 103.72 | 252.124 | 23.423 | 2328.636 | 65.940 | 2337.00 | 66.177 |
| 340.32 | 103.73 | 252.749 | 23.481 | 2336.918 | 66.174 | 2345.29 | 66.411 |
| 340.35 | 103.74 | 253.365 | 23.538 | 2345.220 | 66.409 | 2353.59 | 66.646 |
| 340.39 | 103.75 | 253.991 | 23.597 | 2353.543 | 66.645 | 2361.91 | 66.882 |
| 340.42 | 103.76 | 254.621 | 23.655 | 2361.886 | 66.881 | 2370.25 | 67.118 |
| 340.45 | 103.77 | 255.254 | 23.714 | 2370.250 | 67.118 | 2378.62 | 67.355 |
| 340.49 | 103.78 | 255.883 | 23.772 | 2378.635 | 67.355 | 2387.00 | 67.592 |
| 340.52 | 103.79 | 256.522 | 23.832 | 2387.041 | 67.593 | 2395.41 | 67.830 |
| 340.55 | 103.8 | 257.174 | 23.892 | 2395.467 | 67.832 | 2403.84 | 68.069 |
| 340.58 | 103.81 | 257.826 | 23.953 | 2403.916 | 68.071 | 2412.28 | 68.308 |
| 340.62 | 103.82 | 258.474 | 24.013 | 2412.385 | 68.311 | 2420.75 | 68.548 |
| 340.65 | 103.83 | 259.110 | 24.072 | 2420.876 | 68.551 | 2429.24 | 68.788 |
| 340.68 | 103.84 | 259.724 | 24.129 | 2429.387 | 68.793 | 2437.75 | 69.029 |
| 340.72 | 103.85 | 260.310 | 24.184 | 2437.917 | 69.034 | 2446.29 | 69.271 |
| 340.75 | 103.86 | 260.889 | 24.237 | 2446.467 | 69.276 | 2454.83 | 69.513 |
| 340.78 | 103.87 | 261.465 | 24.291 | 2455.036 | 69.519 | 2463.40 | 69.756 |
| 340.81 | 103.88 | 262.014 | 24.342 | 2463.623 | 69.762 | 2471.99 | 69.999 |
| 340.85 | 103.89 | 262.545 | 24.391 | 2472.228 | 70.006 | 2480.60 | 70.243 |
| 340.88 | 103.9 | 263.078 | 24.441 | 2480.851 | 70.250 | 2489.22 | 70.487 |
| 340.91 | 103.91 | 263.611 | 24.490 | 2489.491 | 70.494 | 2497.86 | 70.731 |
| 340.94 | 103.92 | 264.128 | 24.538 | 2498.148 | 70.740 | 2506.52 | 70.977 |
| 340.98 | 103.93 | 264.641 | 24.586 | 2506.822 | 70.985 | 2515.19 | 71.222 |
| 341.01 | 103.94 | 265.151 | 24.633 | 2515.513 | 71.231 | 2523.88 | 71.468 |
| 341.04 | 103.95 | 265.668 | 24.681 | 2524.220 | 71.478 | 2532.59 | 71.715 |
| 341.08 | 103.96 | 266.190 | 24.730 | 2532.945 | 71.725 | 2541.31 | 71.962 |
| 341.11 | 103.97 | 266.717 | 24.779 | 2541.687 | 71.972 | 2550.05 | 72.209 |
| 341.14 | 103.98 | 267.240 | 24.827 | 2550.446 | 72.221 | 2558.81 | 72.457 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 341.17 | 103.99 | 267.762 | 24.876 | 2559.222 | 72.469 | 2567.59 | 72.706 |
| 341.21 | 104 | 268.266 | 24.923 | 2568.016 | 72.718 | 2576.38 | 72.955 |
| 341.24 | 104.01 | 268.764 | 24.969 | 2576.825 | 72.967 | 2585.19 | 73.204 |
| 341.27 | 104.02 | 269.259 | 25.015 | 2585.651 | 73.217 | 2594.02 | 73.454 |
| 341.31 | 104.03 | 269.760 | 25.062 | 2594.493 | 73.468 | 2602.86 | 73.705 |
| 341.34 | 104.04 | 270.270 | 25.109 | 2603.352 | 73.719 | 2611.72 | 73.956 |
| 341.37 | 104.05 | 270.770 | 25.155 | 2612.227 | 73.970 | 2620.59 | 74.207 |
| 341.40 | 104.06 | 271.274 | 25.202 | 2621.119 | 74.222 | 2629.49 | 74.459 |
| 341.44 | 104.07 | 271.778 | 25.249 | 2630.027 | 74.474 | 2638.40 | 74.711 |
| 341.47 | 104.08 | 272.284 | 25.296 | 2638.952 | 74.727 | 2647.32 | 74.964 |
| 341.50 | 104.09 | 272.798 | 25.344 | 2647.894 | 74.980 | 2656.26 | 75.217 |
| 341.54 | 104.1 | 273.328 | 25.393 | 2656.853 | 75.234 | 2665.22 | 75.471 |
| 341.57 | 104.11 | 273.850 | 25.442 | 2665.829 | 75.488 | 2674.20 | 75.725 |
| 341.60 | 104.12 | 274.373 | 25.490 | 2674.822 | 75.742 | 2683.19 | 75.979 |
| 341.63 | 104.13 | 274.904 | 25.539 | 2683.832 | 75.998 | 2692.20 | 76.235 |
| 341.67 | 104.14 | 275.444 | 25.590 | 2692.860 | 76.253 | 2701.23 | 76.490 |
| 341.70 | 104.15 | 275.982 | 25.640 | 2701.906 | 76.509 | 2710.27 | 76.746 |
| 341.73 | 104.16 | 276.518 | 25.689 | 2710.969 | 76.766 | 2719.34 | 77.003 |
| 341.77 | 104.17 | 277.058 | 25.740 | 2720.050 | 77.023 | 2728.42 | 77.260 |
| 341.80 | 104.18 | 277.608 | 25.791 | 2729.149 | 77.281 | 2737.52 | 77.518 |
| 341.83 | 104.19 | 278.165 | 25.842 | 2738.266 | 77.539 | 2746.63 | 77.776 |
| 341.86 | 104.2 | 278.726 | 25.895 | 2747.401 | 77.798 | 2755.77 | 78.035 |
| 341.90 | 104.21 | 279.272 | 25.945 | 2756.555 | 78.057 | 2764.92 | 78.294 |
| 341.93 | 104.22 | 279.826 | 25.997 | 2765.727 | 78.317 | 2774.09 | 78.554 |
| 341.96 | 104.23 | 280.383 | 26.048 | 2774.916 | 78.577 | 2783.28 | 78.814 |
| 341.99 | 104.24 | 280.941 | 26.100 | 2784.124 | 78.838 | 2792.49 | 79.074 |
| 342.03 | 104.25 | 281.488 | 26.151 | 2793.351 | 79.099 | 2801.72 | 79.336 |
| 342.06 | 104.26 | 282.017 | 26.200 | 2802.595 | 79.361 | 2810.96 | 79.598 |
| 342.09 | 104.27 | 282.542 | 26.249 | 2811.856 | 79.623 | 2820.22 | 79.860 |
| 342.13 | 104.28 | 283.070 | 26.298 | 2821.134 | 79.886 | 2829.50 | 80.122 |
| 342.16 | 104.29 | 283.607 | 26.348 | 2830.430 | 80.149 | 2838.80 | 80.386 |
| 342.19 | 104.3 | 284.155 | 26.399 | 2839.744 | 80.413 | 2848.11 | 80.649 |
| 342.22 | 104.31 | 284.686 | 26.448 | 2849.075 | 80.677 | 2857.44 | 80.914 |
| 342.26 | 104.32 | 285.210 | 26.497 | 2858.424 | 80.941 | 2866.79 | 81.178 |
| 342.29 | 104.33 | 285.734 | 26.546 | 2867.790 | 81.207 | 2876.16 | 81.444 |
| 342.32 | 104.34 | 286.261 | 26.595 | 2877.173 | 81.472 | 2885.54 | 81.709 |
| 342.36 | 104.35 | 286.788 | 26.644 | 2886.573 | 81.739 | 2894.94 | 81.976 |
| 342.39 | 104.36 | 287.314 | 26.692 | 2895.991 | 82.005 | 2904.36 | 82.242 |
| 342.42 | 104.37 | 287.837 | 26.741 | 2905.426 | 82.272 | 2913.79 | 82.509 |
| 342.45 | 104.38 | 288.364 | 26.790 | 2914.878 | 82.540 | 2923.25 | 82.777 |
| 342.49 | 104.39 | 288.893 | 26.839 | 2924.347 | 82.808 | 2932.71 | 83.045 |
| 342.52 | 104.4 | 289.427 | 26.889 | 2933.834 | 83.077 | 2942.20 | 83.314 |
| 342.55 | 104.41 | 289.969 | 26.939 | 2943.339 | 83.346 | 2951.71 | 83.583 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 342.59 | 104.42 | 290.504 | 26.989 | 2952.861 | 83.616 | 2961.23 | 83.853 |
| 342.62 | 104.43 | 291.044 | 27.039 | 2962.401 | 83.886 | 2970.77 | 84.123 |
| 342.65 | 104.44 | 291.583 | 27.089 | 2971.958 | 84.156 | 2980.33 | 84.393 |
| 342.68 | 104.45 | 292.123 | 27.139 | 2981.533 | 84.428 | 2989.90 | 84.664 |
| 342.72 | 104.46 | 292.654 | 27.188 | 2991.126 | 84.699 | 2999.49 | 84.936 |
| 342.75 | 104.47 | 293.178 | 27.237 | 3000.736 | 84.971 | 3009.10 | 85.208 |
| 342.78 | 104.48 | 293.709 | 27.286 | 3010.364 | 85.244 | 3018.73 | 85.481 |
| 342.81 | 104.49 | 294.240 | 27.336 | 3020.009 | 85.517 | 3028.38 | 85.754 |
| 342.85 | 104.5 | 294.768 | 27.385 | 3029.671 | 85.791 | 3038.04 | 86.028 |
| 342.88 | 104.51 | 295.298 | 27.434 | 3039.350 | 86.065 | 3047.72 | 86.302 |
| 342.91 | 104.52 | 295.831 | 27.484 | 3049.047 | 86.339 | 3057.42 | 86.576 |
| 342.95 | 104.53 | 296.360 | 27.533 | 3058.762 | 86.614 | 3067.13 | 86.851 |
| 342.98 | 104.54 | 296.894 | 27.582 | 3068.494 | 86.890 | 3076.86 | 87.127 |
| 343.01 | 104.55 | 297.428 | 27.632 | 3078.243 | 87.166 | 3086.61 | 87.403 |
| 343.04 | 104.56 | 297.961 | 27.681 | 3088.010 | 87.443 | 3096.38 | 87.680 |
| 343.08 | 104.57 | 298.497 | 27.731 | 3097.794 | 87.720 | 3106.16 | 87.957 |
| 343.11 | 104.58 | 299.038 | 27.782 | 3107.596 | 87.997 | 3115.96 | 88.234 |
| 343.14 | 104.59 | 299.582 | 27.832 | 3117.416 | 88.275 | 3125.78 | 88.512 |
| 343.18 | 104.6 | 300.133 | 27.883 | 3127.254 | 88.554 | 3135.62 | 88.791 |
| 343.21 | 104.61 | 300.683 | 27.934 | 3137.110 | 88.833 | 3145.48 | 89.070 |
| 343.24 | 104.62 | 301.230 | 27.985 | 3146.984 | 89.113 | 3155.35 | 89.350 |
| 343.27 | 104.63 | 301.769 | 28.035 | 3156.876 | 89.393 | 3165.24 | 89.630 |
| 343.31 | 104.64 | 302.307 | 28.085 | 3166.785 | 89.673 | 3175.15 | 89.910 |
| 343.34 | 104.65 | 302.851 | 28.136 | 3176.712 | 89.954 | 3185.08 | 90.191 |
| 343.37 | 104.66 | 303.398 | 28.187 | 3186.657 | 90.236 | 3195.02 | 90.473 |
| 343.41 | 104.67 | 303.949 | 28.238 | 3196.620 | 90.518 | 3204.99 | 90.755 |
| 343.44 | 104.68 | 304.502 | 28.289 | 3206.601 | 90.801 | 3214.97 | 91.038 |
| 343.47 | 104.69 | 305.059 | 28.341 | 3216.601 | 91.084 | 3224.97 | 91.321 |
| 343.50 | 104.7 | 305.624 | 28.393 | 3226.619 | 91.368 | 3234.99 | 91.605 |
| 343.54 | 104.71 | 306.188 | 28.446 | 3236.655 | 91.652 | 3245.02 | 91.889 |
| 343.57 | 104.72 | 306.756 | 28.499 | 3246.710 | 91.936 | 3255.08 | 92.173 |
| 343.60 | 104.73 | 307.313 | 28.550 | 3256.783 | 92.222 | 3265.15 | 92.459 |
| 343.64 | 104.74 | 307.872 | 28.602 | 3266.875 | 92.508 | 3275.24 | 92.744 |
| 343.67 | 104.75 | 308.427 | 28.654 | 3276.985 | 92.794 | 3285.35 | 93.031 |
| 343.70 | 104.76 | 308.984 | 28.706 | 3287.113 | 93.081 | 3295.48 | 93.318 |
| 343.73 | 104.77 | 309.528 | 28.756 | 3297.259 | 93.368 | 3305.63 | 93.605 |
| 343.77 | 104.78 | 310.075 | 28.807 | 3307.423 | 93.656 | 3315.79 | 93.893 |
| 343.80 | 104.79 | 310.639 | 28.859 | 3317.605 | 93.944 | 3325.97 | 94.181 |
| 343.83 | 104.8 | 311.214 | 28.913 | 3327.806 | 94.233 | 3336.17 | 94.470 |
| 343.86 | 104.81 | 311.794 | 28.967 | 3338.026 | 94.522 | 3346.39 | 94.759 |
| 343.90 | 104.82 | 312.382 | 29.021 | 3348.265 | 94.812 | 3356.63 | 95.049 |
| 343.93 | 104.83 | 312.973 | 29.076 | 3358.524 | 95.103 | 3366.89 | 95.340 |
| 343.96 | 104.84 | 313.564 | 29.131 | 3368.802 | 95.394 | 3377.17 | 95.631 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 344.00 | 104.85 | 314.152 | 29.186 | 3379.099 | 95.685 | 3387.47 | 95.922 |
| 344.03 | 104.86 | 314.740 | 29.240 | 3389.415 | 95.977 | 3397.78 | 96.214 |
| 344.06 | 104.87 | 315.329 | 29.295 | 3399.751 | 96.270 | 3408.12 | 96.507 |
| 344.09 | 104.88 | 315.927 | 29.351 | 3410.106 | 96.563 | 3418.47 | 96.800 |
| 344.13 | 104.89 | 316.525 | 29.406 | 3420.481 | 96.857 | 3428.85 | 97.094 |
| 344.16 | 104.9 | 317.133 | 29.463 | 3430.876 | 97.151 | 3439.24 | 97.388 |
| 344.19 | 104.91 | 317.738 | 29.519 | 3441.290 | 97.446 | 3449.66 | 97.683 |
| 344.23 | 104.92 | 318.347 | 29.575 | 3451.725 | 97.742 | 3460.09 | 97.979 |
| 344.26 | 104.93 | 318.966 | 29.633 | 3462.180 | 98.038 | 3470.55 | 98.275 |
| 344.29 | 104.94 | 319.584 | 29.690 | 3472.654 | 98.335 | 3481.02 | 98.571 |
| 344.32 | 104.95 | 320.197 | 29.747 | 3483.149 | 98.632 | 3491.52 | 98.869 |
| 344.36 | 104.96 | 320.810 | 29.804 | 3493.665 | 98.929 | 3502.03 | 99.166 |
| 344.39 | 104.97 | 321.420 | 29.861 | 3504.200 | 99.228 | 3512.57 | 99.465 |
| 344.42 | 104.98 | 322.026 | 29.917 | 3514.755 | 99.527 | 3523.12 | 99.764 |
| 344.46 | 104.99 | 322.632 | 29.974 | 3525.330 | 99.826 | 3533.70 | 100.063 |
| 344.49 | 105 | 323.237 | 30.030 | 3535.925 | 100.126 | 3544.29 | 100.363 |
| 344.52 | 105.01 | 323.846 | 30.086 | 3546.540 | 100.427 | 3554.91 | 100.664 |
| 344.55 | 105.02 | 324.455 | 30.143 | 3557.175 | 100.728 | 3565.54 | 100.965 |
| 344.59 | 105.03 | 325.075 | 30.201 | 3567.830 | 101.030 | 3576.20 | 101.267 |
| 344.62 | 105.04 | 325.692 | 30.258 | 3578.505 | 101.332 | 3586.87 | 101.569 |
| 344.65 | 105.05 | 326.308 | 30.315 | 3589.201 | 101.635 | 3597.57 | 101.872 |
| 344.69 | 105.06 | 326.932 | 30.373 | 3599.917 | 101.938 | 3608.28 | 102.175 |
| 344.72 | 105.07 | 327.555 | 30.431 | 3610.653 | 102.242 | 3619.02 | 102.479 |
| 344.75 | 105.08 | 328.176 | 30.489 | 3621.410 | 102.547 | 3629.78 | 102.784 |
| 344.78 | 105.09 | 328.793 | 30.546 | 3632.187 | 102.852 | 3640.55 | 103.089 |
| 344.82 | 105.1 | 329.405 | 30.603 | 3642.984 | 103.158 | 3651.35 | 103.395 |
| 344.85 | 105.11 | 330.011 | 30.659 | 3653.801 | 103.464 | 3662.17 | 103.701 |
| 344.88 | 105.12 | 330.606 | 30.714 | 3664.638 | 103.771 | 3673.01 | 104.008 |
| 344.91 | 105.13 | 331.199 | 30.769 | 3675.495 | 104.078 | 3683.86 | 104.315 |
| 344.95 | 105.14 | 331.800 | 30.825 | 3686.370 | 104.386 | 3694.74 | 104.623 |
| 344.98 | 105.15 | 332.410 | 30.882 | 3697.266 | 104.695 | 3705.63 | 104.932 |
| 345.01 | 105.16 | 333.021 | 30.939 | 3708.182 | 105.004 | 3716.55 | 105.241 |
| 345.05 | 105.17 | 333.635 | 30.996 | 3719.118 | 105.314 | 3727.49 | 105.551 |
| 345.08 | 105.18 | 334.234 | 31.051 | 3730.074 | 105.624 | 3738.44 | 105.861 |
| 345.11 | 105.19 | 334.834 | 31.107 | 3741.050 | 105.935 | 3749.42 | 106.172 |
| 345.14 | 105.2 | 335.443 | 31.164 | 3752.045 | 106.246 | 3760.41 | 106.483 |
| 345.18 | 105.21 | 336.069 | 31.222 | 3763.060 | 106.558 | 3771.43 | 106.795 |
| 345.21 | 105.22 | 336.700 | 31.280 | 3774.097 | 106.870 | 3782.46 | 107.107 |
| 345.24 | 105.23 | 337.337 | 31.340 | 3785.154 | 107.184 | 3793.52 | 107.420 |
| 345.28 | 105.24 | 337.973 | 31.399 | 3796.232 | 107.497 | 3804.60 | 107.734 |
| 345.31 | 105.25 | 338.610 | 31.458 | 3807.330 | 107.811 | 3815.70 | 108.048 |
| 345.34 | 105.26 | 339.250 | 31.517 | 3818.450 | 108.126 | 3826.82 | 108.363 |
| 345.37 | 105.27 | 339.892 | 31.577 | 3829.591 | 108.442 | 3837.96 | 108.679 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 345.41 | 105.28 | 340.545 | 31.638 | 3840.753 | 108.758 | 3849.12 | 108.995 |
| 345.44 | 105.29 | 341.205 | 31.699 | 3851.936 | 109.075 | 3860.30 | 109.312 |
| 345.47 | 105.3 | 341.870 | 31.761 | 3863.142 | 109.392 | 3871.51 | 109.629 |
| 345.51 | 105.31 | 342.550 | 31.824 | 3874.369 | 109.710 | 3882.74 | 109.947 |
| 345.54 | 105.32 | 343.249 | 31.889 | 3885.619 | 110.028 | 3893.99 | 110.265 |
| 345.57 | 105.33 | 343.946 | 31.954 | 3896.892 | 110.348 | 3905.26 | 110.585 |
| 345.60 | 105.34 | 344.649 | 32.019 | 3908.188 | 110.667 | 3916.56 | 110.904 |
| 345.64 | 105.35 | 345.356 | 32.085 | 3919.507 | 110.988 | 3927.87 | 111.225 |
| 345.67 | 105.36 | 346.051 | 32.149 | 3930.849 | 111.309 | 3939.22 | 111.546 |
| 345.70 | 105.37 | 346.744 | 32.214 | 3942.214 | 111.631 | 3950.58 | 111.868 |
| 345.73 | 105.38 | 347.432 | 32.278 | 3953.601 | 111.953 | 3961.97 | 112.190 |
| 345.77 | 105.39 | 348.123 | 32.342 | 3965.011 | 112.277 | 3973.38 | 112.513 |
| 345.80 | 105.4 | 348.832 | 32.408 | 3976.444 | 112.600 | 3984.81 | 112.837 |
| 345.83 | 105.41 | 349.562 | 32.475 | 3987.900 | 112.925 | 3996.27 | 113.162 |
| 345.87 | 105.42 | 350.287 | 32.543 | 3999.381 | 113.250 | 4007.75 | 113.487 |
| 345.90 | 105.43 | 351.024 | 32.611 | 4010.885 | 113.576 | 4019.25 | 113.812 |
| 345.93 | 105.44 | 351.769 | 32.680 | 4022.414 | 113.902 | 4030.78 | 114.139 |
| 345.96 | 105.45 | 352.519 | 32.750 | 4033.967 | 114.229 | 4042.33 | 114.466 |
| 346.00 | 105.46 | 353.265 | 32.819 | 4045.545 | 114.557 | 4053.91 | 114.794 |
| 346.03 | 105.47 | 354.016 | 32.889 | 4057.147 | 114.886 | 4065.52 | 115.122 |
| 346.06 | 105.48 | 354.747 | 32.957 | 4068.774 | 115.215 | 4077.14 | 115.452 |
| 346.10 | 105.49 | 355.466 | 33.024 | 4080.425 | 115.545 | 4088.79 | 115.782 |
| 346.13 | 105.5 | 356.194 | 33.092 | 4092.099 | 115.875 | 4100.47 | 116.112 |
| 346.16 | 105.51 | 356.920 | 33.159 | 4103.797 | 116.206 | 4112.16 | 116.443 |
| 346.19 | 105.52 | 357.627 | 33.225 | 4115.519 | 116.538 | 4123.89 | 116.775 |
| 346.23 | 105.53 | 358.326 | 33.290 | 4127.263 | 116.871 | 4135.63 | 117.108 |
| 346.26 | 105.54 | 359.030 | 33.355 | 4139.031 | 117.204 | 4147.40 | 117.441 |
| 346.29 | 105.55 | 359.737 | 33.421 | 4150.822 | 117.538 | 4159.19 | 117.775 |
| 346.33 | 105.56 | 360.439 | 33.486 | 4162.636 | 117.873 | 4171.00 | 118.110 |
| 346.36 | 105.57 | 361.135 | 33.551 | 4174.473 | 118.208 | 4182.84 | 118.445 |
| 346.39 | 105.58 | 361.830 | 33.615 | 4186.332 | 118.544 | 4194.70 | 118.781 |
| 346.42 | 105.59 | 362.526 | 33.680 | 4198.215 | 118.880 | 4206.58 | 119.117 |
| 346.46 | 105.6 | 363.210 | 33.743 | 4210.120 | 119.217 | 4218.49 | 119.454 |
| 346.49 | 105.61 | 363.898 | 33.807 | 4222.047 | 119.555 | 4230.42 | 119.792 |
| 346.52 | 105.62 | 364.587 | 33.871 | 4233.998 | 119.893 | 4242.37 | 120.130 |
| 346.56 | 105.63 | 365.272 | 33.935 | 4245.971 | 120.232 | 4254.34 | 120.469 |
| 346.59 | 105.64 | 365.952 | 33.998 | 4257.966 | 120.572 | 4266.33 | 120.809 |
| 346.62 | 105.65 | 366.634 | 34.061 | 4269.983 | 120.912 | 4278.35 | 121.149 |
| 346.65 | 105.66 | 367.313 | 34.125 | 4282.023 | 121.253 | 4290.39 | 121.490 |
| 346.69 | 105.67 | 367.975 | 34.186 | 4294.085 | 121.595 | 4302.45 | 121.832 |
| 346.72 | 105.68 | 368.644 | 34.248 | 4306.169 | 121.937 | 4314.54 | 122.174 |
| 346.75 | 105.69 | 369.315 | 34.311 | 4318.274 | 122.280 | 4326.64 | 122.517 |
| 346.78 | 105.7 | 369.997 | 34.374 | 4330.402 | 122.623 | 4338.77 | 122.860 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 346.82 | 105.71 | 370.677 | 34.437 | 4342.552 | 122.967 | 4350.92 | 123.204 |
| 346.85 | 105.72 | 371.360 | 34.501 | 4354.725 | 123.312 | 4363.09 | 123.549 |
| 346.88 | 105.73 | 372.050 | 34.565 | 4366.920 | 123.657 | 4375.29 | 123.894 |
| 346.92 | 105.74 | 372.745 | 34.629 | 4379.138 | 124.003 | 4387.51 | 124.240 |
| 346.95 | 105.75 | 373.465 | 34.696 | 4391.378 | 124.350 | 4399.75 | 124.587 |
| 346.98 | 105.76 | 374.168 | 34.761 | 4403.643 | 124.697 | 4412.01 | 124.934 |
| 347.01 | 105.77 | 374.856 | 34.825 | 4415.930 | 125.045 | 4424.30 | 125.282 |
| 347.05 | 105.78 | 375.542 | 34.889 | 4428.240 | 125.394 | 4436.61 | 125.631 |
| 347.08 | 105.79 | 376.234 | 34.953 | 4440.572 | 125.743 | 4448.94 | 125.980 |
| 347.11 | 105.8 | 376.929 | 35.018 | 4452.927 | 126.093 | 4461.29 | 126.330 |
| 347.15 | 105.81 | 377.626 | 35.083 | 4465.305 | 126.443 | 4473.67 | 126.680 |
| 347.18 | 105.82 | 378.331 | 35.148 | 4477.706 | 126.794 | 4486.07 | 127.031 |
| 347.21 | 105.83 | 379.039 | 35.214 | 4490.130 | 127.146 | 4498.50 | 127.383 |
| 347.24 | 105.84 | 379.747 | 35.280 | 4502.577 | 127.499 | 4510.94 | 127.736 |
| 347.28 | 105.85 | 380.463 | 35.346 | 4515.048 | 127.852 | 4523.42 | 128.089 |
| 347.31 | 105.86 | 381.170 | 35.412 | 4527.542 | 128.206 | 4535.91 | 128.443 |
| 347.34 | 105.87 | 381.873 | 35.477 | 4540.059 | 128.560 | 4548.43 | 128.797 |
| 347.38 | 105.88 | 382.573 | 35.542 | 4552.599 | 128.915 | 4560.97 | 129.152 |
| 347.41 | 105.89 | 383.273 | 35.607 | 4565.162 | 129.271 | 4573.53 | 129.508 |
| 347.44 | 105.9 | 383.983 | 35.673 | 4577.748 | 129.627 | 4586.12 | 129.864 |
| 347.47 | 105.91 | 384.686 | 35.739 | 4590.358 | 129.984 | 4598.73 | 130.221 |
| 347.51 | 105.92 | 385.392 | 35.804 | 4602.990 | 130.342 | 4611.36 | 130.579 |
| 347.54 | 105.93 | 386.101 | 35.870 | 4615.646 | 130.700 | 4624.01 | 130.937 |
| 347.57 | 105.94 | 386.822 | 35.937 | 4628.325 | 131.059 | 4636.69 | 131.296 |
| 347.60 | 105.95 | 387.553 | 36.005 | 4641.028 | 131.419 | 4649.40 | 131.656 |
| 347.64 | 105.96 | 388.301 | 36.074 | 4653.755 | 131.780 | 4662.12 | 132.016 |
| 347.67 | 105.97 | 389.062 | 36.145 | 4666.507 | 132.141 | 4674.88 | 132.378 |
| 347.70 | 105.98 | 389.809 | 36.214 | 4679.284 | 132.502 | 4687.65 | 132.739 |
| 347.74 | 105.99 | 390.544 | 36.283 | 4692.085 | 132.865 | 4700.45 | 133.102 |
| 347.77 | 106 | 391.258 | 36.349 | 4704.910 | 133.228 | 4713.28 | 133.465 |
| 347.80 | 106.01 | 391.973 | 36.415 | 4717.758 | 133.592 | 4726.13 | 133.829 |
| 347.83 | 106.02 | 392.686 | 36.482 | 4730.630 | 133.956 | 4739.00 | 134.193 |
| 347.87 | 106.03 | 393.394 | 36.548 | 4743.525 | 134.322 | 4751.89 | 134.558 |
| 347.90 | 106.04 | 394.104 | 36.614 | 4756.443 | 134.687 | 4764.81 | 134.924 |
| 347.93 | 106.05 | 394.819 | 36.680 | 4769.385 | 135.054 | 4777.75 | 135.291 |
| 347.97 | 106.06 | 395.563 | 36.749 | 4782.351 | 135.421 | 4790.72 | 135.658 |
| 348.00 | 106.07 | 396.323 | 36.820 | 4795.341 | 135.789 | 4803.71 | 136.026 |
| 348.03 | 106.08 | 397.069 | 36.889 | 4808.356 | 136.157 | 4816.72 | 136.394 |
| 348.06 | 106.09 | 397.829 | 36.960 | 4821.396 | 136.527 | 4829.76 | 136.764 |
| 348.10 | 106.1 | 398.593 | 37.031 | 4834.460 | 136.897 | 4842.83 | 137.133 |
| 348.13 | 106.11 | 399.361 | 37.102 | 4847.550 | 137.267 | 4855.92 | 137.504 |
| 348.16 | 106.12 | 400.158 | 37.176 | 4860.665 | 137.639 | 4869.03 | 137.876 |
| 348.20 | 106.13 | 400.990 | 37.253 | 4873.808 | 138.011 | 4882.18 | 138.248 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 348.23 | 106.14 | 401.794 | 37.328 | 4886.977 | 138.384 | 4895.34 | 138.621 |
| 348.26 | 106.15 | 402.582 | 37.401 | 4900.172 | 138.757 | 4908.54 | 138.994 |
| 348.29 | 106.16 | 403.296 | 37.467 | 4913.392 | 139.132 | 4921.76 | 139.369 |
| 348.33 | 106.17 | 403.992 | 37.532 | 4926.635 | 139.507 | 4935.00 | 139.744 |
| 348.36 | 106.18 | 404.683 | 37.596 | 4939.900 | 139.882 | 4948.27 | 140.119 |
| 348.39 | 106.19 | 405.379 | 37.661 | 4953.189 | 140.259 | 4961.56 | 140.495 |
| 348.43 | 106.2 | 406.078 | 37.726 | 4966.500 | 140.635 | 4974.87 | 140.872 |
| 348.46 | 106.21 | 406.772 | 37.790 | 4979.834 | 141.013 | 4988.20 | 141.250 |
| 348.49 | 106.22 | 407.464 | 37.855 | 4993.191 | 141.391 | 5001.56 | 141.628 |
| 348.52 | 106.23 | 408.153 | 37.919 | 5006.571 | 141.770 | 5014.94 | 142.007 |
| 348.56 | 106.24 | 408.846 | 37.983 | 5019.973 | 142.150 | 5028.34 | 142.387 |
| 348.59 | 106.25 | 409.540 | 38.048 | 5033.398 | 142.530 | 5041.77 | 142.767 |
| 348.62 | 106.26 | 410.240 | 38.113 | 5046.846 | 142.911 | 5055.21 | 143.148 |
| 348.65 | 106.27 | 410.935 | 38.177 | 5060.316 | 143.292 | 5068.68 | 143.529 |
| 348.69 | 106.28 | 411.637 | 38.242 | 5073.810 | 143.674 | 5082.18 | 143.911 |
| 348.72 | 106.29 | 412.361 | 38.310 | 5087.327 | 144.057 | 5095.69 | 144.294 |
| 348.75 | 106.3 | 413.057 | 38.374 | 5100.868 | 144.440 | 5109.24 | 144.677 |
| 348.79 | 106.31 | 413.754 | 38.439 | 5114.431 | 144.824 | 5122.80 | 145.061 |
| 348.82 | 106.32 | 414.449 | 38.504 | 5128.017 | 145.209 | 5136.38 | 145.446 |
| 348.85 | 106.33 | 415.147 | 38.568 | 5141.626 | 145.594 | 5149.99 | 145.831 |
| 348.88 | 106.34 | 415.842 | 38.633 | 5155.257 | 145.980 | 5163.63 | 146.217 |
| 348.92 | 106.35 | 416.553 | 38.699 | 5168.912 | 146.367 | 5177.28 | 146.604 |
| 348.95 | 106.36 | 417.269 | 38.766 | 5182.590 | 146.754 | 5190.96 | 146.991 |
| 348.98 | 106.37 | 417.980 | 38.832 | 5196.292 | 147.142 | 5204.66 | 147.379 |
| 349.02 | 106.38 | 418.696 | 38.898 | 5210.017 | 147.531 | 5218.38 | 147.768 |
| 349.05 | 106.39 | 419.445 | 38.968 | 5223.766 | 147.920 | 5232.13 | 148.157 |
| 349.08 | 106.4 | 420.171 | 39.035 | 5237.539 | 148.310 | 5245.91 | 148.547 |
| 349.11 | 106.41 | 420.887 | 39.102 | 5251.336 | 148.701 | 5259.70 | 148.938 |
| 349.15 | 106.42 | 421.581 | 39.166 | 5265.156 | 149.092 | 5273.52 | 149.329 |
| 349.18 | 106.43 | 422.275 | 39.231 | 5278.999 | 149.484 | 5287.37 | 149.721 |
| 349.21 | 106.44 | 422.953 | 39.294 | 5292.864 | 149.877 | 5301.23 | 150.114 |
| 349.25 | 106.45 | 423.624 | 39.356 | 5306.752 | 150.270 | 5315.12 | 150.507 |
| 349.28 | 106.46 | 424.293 | 39.418 | 5320.661 | 150.664 | 5329.03 | 150.901 |
| 349.31 | 106.47 | 424.960 | 39.480 | 5334.592 | 151.059 | 5342.96 | 151.296 |
| 349.34 | 106.48 | 425.619 | 39.541 | 5348.546 | 151.454 | 5356.91 | 151.691 |
| 349.38 | 106.49 | 426.265 | 39.601 | 5362.520 | 151.850 | 5370.89 | 152.086 |
| 349.41 | 106.5 | 426.906 | 39.661 | 5376.516 | 152.246 | 5384.88 | 152.483 |
| 349.44 | 106.51 | 427.535 | 39.719 | 5390.532 | 152.643 | 5398.90 | 152.880 |
| 349.48 | 106.52 | 428.153 | 39.777 | 5404.569 | 153.040 | 5412.94 | 153.277 |
| 349.51 | 106.53 | 428.762 | 39.833 | 5418.626 | 153.438 | 5426.99 | 153.675 |
| 349.54 | 106.54 | 429.364 | 39.889 | 5432.703 | 153.837 | 5441.07 | 154.074 |
| 349.57 | 106.55 | 429.962 | 39.945 | 5446.800 | 154.236 | 5455.17 | 154.473 |
| 349.61 | 106.56 | 430.551 | 40.000 | 5460.916 | 154.636 | 5469.28 | 154.873 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 349.64 | 106.57 | 431.140 | 40.054 | 5475.051 | 155.036 | 5483.42 | 155.273 |
| 349.67 | 106.58 | 431.732 | 40.109 | 5489.206 | 155.437 | 5497.57 | 155.674 |
| 349.70 | 106.59 | 432.326 | 40.164 | 5503.380 | 155.838 | 5511.75 | 156.075 |
| 349.74 | 106.6 | 432.918 | 40.219 | 5517.574 | 156.240 | 5525.94 | 156.477 |
| 349.77 | 106.61 | 433.503 | 40.274 | 5531.787 | 156.643 | 5540.15 | 156.880 |
| 349.80 | 106.62 | 434.081 | 40.327 | 5546.019 | 157.046 | 5554.39 | 157.283 |
| 349.84 | 106.63 | 434.656 | 40.381 | 5560.270 | 157.449 | 5568.64 | 157.686 |
| 349.87 | 106.64 | 435.234 | 40.435 | 5574.540 | 157.853 | 5582.91 | 158.090 |
| 349.90 | 106.65 | 435.816 | 40.489 | 5588.828 | 158.258 | 5597.20 | 158.495 |
| 349.93 | 106.66 | 436.407 | 40.544 | 5603.137 | 158.663 | 5611.50 | 158.900 |
| 349.97 | 106.67 | 437.004 | 40.599 | 5617.464 | 159.069 | 5625.83 | 159.306 |
| 350.00 | 106.68 | 437.599 | 40.654 | 5631.811 | 159.475 | 5640.18 | 159.712 |
| 350.03 | 106.69 | 438.193 | 40.710 | 5646.178 | 159.882 | 5654.55 | 160.119 |
| 350.07 | 106.7 | 438.782 | 40.764 | 5660.564 | 160.289 | 5668.93 | 160.526 |
| 350.10 | 106.71 | 439.362 | 40.818 | 5674.970 | 160.697 | 5683.34 | 160.934 |
| 350.13 | 106.72 | 439.930 | 40.871 | 5689.394 | 161.106 | 5697.76 | 161.342 |
| 350.16 | 106.73 | 440.495 | 40.923 | 5703.836 | 161.515 | 5712.20 | 161.751 |
| 350.20 | 106.74 | 441.057 | 40.976 | 5718.298 | 161.924 | 5726.67 | 162.161 |
| 350.23 | 106.75 | 441.621 | 41.028 | 5732.777 | 162.334 | 5741.14 | 162.571 |
| 350.26 | 106.76 | 442.189 | 41.081 | 5747.275 | 162.745 | 5755.64 | 162.982 |
| 350.30 | 106.77 | 442.763 | 41.134 | 5761.792 | 163.156 | 5770.16 | 163.393 |
| 350.33 | 106.78 | 443.341 | 41.188 | 5776.328 | 163.567 | 5784.70 | 163.804 |
| 350.36 | 106.79 | 443.926 | 41.242 | 5790.883 | 163.979 | 5799.25 | 164.216 |
| 350.39 | 106.8 | 444.517 | 41.297 | 5805.457 | 164.392 | 5813.82 | 164.629 |
| 350.43 | 106.81 | 445.103 | 41.351 | 5820.051 | 164.805 | 5828.42 | 165.042 |
| 350.46 | 106.82 | 445.689 | 41.406 | 5834.664 | 165.219 | 5843.03 | 165.456 |
| 350.49 | 106.83 | 446.270 | 41.460 | 5849.296 | 165.633 | 5857.66 | 165.870 |
| 350.52 | 106.84 | 446.845 | 41.513 | 5863.946 | 166.048 | 5872.31 | 166.285 |
| 350.56 | 106.85 | 447.421 | 41.567 | 5878.616 | 166.464 | 5886.98 | 166.701 |
| 350.59 | 106.86 | 447.993 | 41.620 | 5893.305 | 166.880 | 5901.67 | 167.117 |
| 350.62 | 106.87 | 448.559 | 41.673 | 5908.012 | 167.296 | 5916.38 | 167.533 |
| 350.66 | 106.88 | 449.126 | 41.725 | 5922.738 | 167.713 | 5931.11 | 167.950 |
| 350.69 | 106.89 | 449.699 | 41.778 | 5937.482 | 168.131 | 5945.85 | 168.368 |
| 350.72 | 106.9 | 450.271 | 41.832 | 5952.246 | 168.549 | 5960.61 | 168.786 |
| 350.75 | 106.91 | 450.835 | 41.884 | 5967.028 | 168.967 | 5975.40 | 169.204 |
| 350.79 | 106.92 | 451.400 | 41.936 | 5981.828 | 169.386 | 5990.20 | 169.623 |
| 350.82 | 106.93 | 451.958 | 41.988 | 5996.647 | 169.806 | 6005.01 | 170.043 |
| 350.85 | 106.94 | 452.513 | 42.040 | 6011.484 | 170.226 | 6019.85 | 170.463 |
| 350.89 | 106.95 | 453.067 | 42.091 | 6026.340 | 170.647 | 6034.71 | 170.884 |
| 350.92 | 106.96 | 453.619 | 42.143 | 6041.213 | 171.068 | 6049.58 | 171.305 |
| 350.95 | 106.97 | 454.179 | 42.195 | 6056.105 | 171.490 | 6064.47 | 171.727 |
| 350.98 | 106.98 | 454.744 | 42.247 | 6071.015 | 171.912 | 6079.38 | 172.149 |
| 351.02 | 106.99 | 455.312 | 42.300 | 6085.944 | 172.335 | 6094.31 | 172.572 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 351.05 | 107 | 455.889 | 42.353 | 6100.891 | 172.758 | 6109.26 | 172.995 |
| 351.08 | 107.01 | 456.471 | 42.408 | 6115.858 | 173.182 | 6124.23 | 173.419 |
| 351.12 | 107.02 | 457.049 | 42.461 | 6130.843 | 173.606 | 6139.21 | 173.843 |
| 351.15 | 107.03 | 457.623 | 42.515 | 6145.848 | 174.031 | 6154.22 | 174.268 |
| 351.18 | 107.04 | 458.194 | 42.568 | 6160.871 | 174.456 | 6169.24 | 174.693 |
| 351.21 | 107.05 | 458.770 | 42.621 | 6175.913 | 174.882 | 6184.28 | 175.119 |
| 351.25 | 107.06 | 459.347 | 42.675 | 6190.974 | 175.309 | 6199.34 | 175.546 |
| 351.28 | 107.07 | 459.912 | 42.727 | 6206.054 | 175.736 | 6214.42 | 175.973 |
| 351.31 | 107.08 | 460.473 | 42.779 | 6221.152 | 176.163 | 6229.52 | 176.400 |
| 351.35 | 107.09 | 461.029 | 42.831 | 6236.269 | 176.591 | 6244.64 | 176.828 |
| 351.38 | 107.1 | 461.586 | 42.883 | 6251.403 | 177.020 | 6259.77 | 177.257 |
| 351.41 | 107.11 | 462.143 | 42.935 | 6266.557 | 177.449 | 6274.92 | 177.686 |
| 351.44 | 107.12 | 462.699 | 42.986 | 6281.728 | 177.879 | 6290.10 | 178.116 |
| 351.48 | 107.13 | 463.249 | 43.037 | 6296.917 | 178.309 | 6305.29 | 178.546 |
| 351.51 | 107.14 | 463.788 | 43.087 | 6312.125 | 178.739 | 6320.49 | 178.976 |
| 351.54 | 107.15 | 464.322 | 43.137 | 6327.350 | 179.170 | 6335.72 | 179.407 |
| 351.57 | 107.16 | 464.850 | 43.186 | 6342.592 | 179.602 | 6350.96 | 179.839 |
| 351.61 | 107.17 | 465.376 | 43.235 | 6357.852 | 180.034 | 6366.22 | 180.271 |
| 351.64 | 107.18 | 465.902 | 43.284 | 6373.129 | 180.467 | 6381.50 | 180.704 |
| 351.67 | 107.19 | 466.426 | 43.332 | 6388.423 | 180.900 | 6396.79 | 181.137 |
| 351.71 | 107.2 | 466.955 | 43.382 | 6403.734 | 181.333 | 6412.10 | 181.570 |
| 351.74 | 107.21 | 467.488 | 43.431 | 6419.063 | 181.767 | 6427.43 | 182.004 |
| 351.77 | 107.22 | 468.026 | 43.481 | 6434.409 | 182.202 | 6442.78 | 182.439 |
| 351.80 | 107.23 | 468.567 | 43.531 | 6449.773 | 182.637 | 6458.14 | 182.874 |
| 351.84 | 107.24 | 469.113 | 43.582 | 6465.155 | 183.073 | 6473.52 | 183.310 |
| 351.87 | 107.25 | 469.677 | 43.634 | 6480.555 | 183.509 | 6488.92 | 183.746 |
| 351.90 | 107.26 | 470.237 | 43.686 | 6495.974 | 183.945 | 6504.34 | 184.182 |
| 351.94 | 107.27 | 470.789 | 43.738 | 6511.411 | 184.382 | 6519.78 | 184.619 |
| 351.97 | 107.28 | 471.338 | 43.789 | 6526.866 | 184.820 | 6535.23 | 185.057 |
| 352.00 | 107.29 | 471.879 | 43.839 | 6542.338 | 185.258 | 6550.71 | 185.495 |
| 352.03 | 107.3 | 472.411 | 43.888 | 6557.829 | 185.697 | 6566.20 | 185.934 |
| 352.07 | 107.31 | 472.938 | 43.937 | 6573.337 | 186.136 | 6581.70 | 186.373 |
| 352.10 | 107.32 | 473.463 | 43.986 | 6588.862 | 186.576 | 6597.23 | 186.813 |
| 352.13 | 107.33 | 473.990 | 44.035 | 6604.404 | 187.016 | 6612.77 | 187.253 |
| 352.17 | 107.34 | 474.515 | 44.084 | 6619.963 | 187.456 | 6628.33 | 187.693 |
| 352.20 | 107.35 | 475.038 | 44.133 | 6635.540 | 187.897 | 6643.91 | 188.134 |
| 352.23 | 107.36 | 475.562 | 44.181 | 6651.134 | 188.339 | 6659.50 | 188.576 |
| 352.26 | 107.37 | 476.091 | 44.230 | 6666.745 | 188.781 | 6675.11 | 189.018 |
| 352.30 | 107.38 | 476.618 | 44.279 | 6682.373 | 189.224 | 6690.74 | 189.461 |
| 352.33 | 107.39 | 477.145 | 44.328 | 6698.019 | 189.667 | 6706.39 | 189.904 |
| 352.36 | 107.4 | 477.667 | 44.377 | 6713.682 | 190.110 | 6722.05 | 190.347 |
| 352.40 | 107.41 | 478.190 | 44.425 | 6729.362 | 190.554 | 6737.73 | 190.791 |
| 352.43 | 107.42 | 478.720 | 44.475 | 6745.060 | 190.999 | 6753.43 | 191.236 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | |
|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) |
| 352.46 | 107.43 | 479.256 | 44.524 | 6760.774 | 191.444 | 6769.14 | 191.681 |
| 352.49 | 107.44 | 479.791 | 44.574 | 6776.507 | 191.889 | 6784.87 | 192.126 |
| 352.53 | 107.45 | 480.327 | 44.624 | 6792.257 | 192.335 | 6800.62 | 192.572 |
| 352.56 | 107.46 | 480.860 | 44.673 | 6808.024 | 192.782 | 6816.39 | 193.019 |
| 352.59 | 107.47 | 481.387 | 44.722 | 6823.809 | 193.229 | 6832.18 | 193.466 |
| 352.62 | 107.48 | 481.912 | 44.771 | 6839.612 | 193.676 | 6847.98 | 193.913 |
| 352.66 | 107.49 | 482.434 | 44.820 | 6855.431 | 194.124 | 6863.80 | 194.361 |
| 352.69 | 107.5 | 482.959 | 44.868 | 6871.267 | 194.572 | 6879.64 | 194.809 |
| 352.72 | 107.51 | 483.491 | 44.918 | 6887.121 | 195.021 | 6895.49 | 195.258 |
| 352.76 | 107.52 | 484.027 | 44.968 | 6902.993 | 195.471 | 6911.36 | 195.708 |
| 352.79 | 107.53 | 484.569 | 45.018 | 6918.882 | 195.921 | 6927.25 | 196.158 |
| 352.82 | 107.54 | 485.112 | 45.068 | 6934.789 | 196.371 | 6943.16 | 196.608 |
| 352.85 | 107.55 | 485.650 | 45.118 | 6950.713 | 196.822 | 6959.08 | 197.059 |
| 352.89 | 107.56 | 486.187 | 45.168 | 6966.655 | 197.274 | 6975.02 | 197.510 |
| 352.92 | 107.57 | 486.732 | 45.219 | 6982.615 | 197.725 | 6990.98 | 197.962 |
| 352.95 | 107.58 | 487.274 | 45.269 | 6998.593 | 198.178 | 7006.96 | 198.415 |
| 352.99 | 107.59 | 487.819 | 45.320 | 7014.589 | 198.631 | 7022.96 | 198.868 |
| 353.02 | 107.6 | 488.364 | 45.371 | 7030.602 | 199.084 | 7038.97 | 199.321 |
| 353.05 | 107.61 | 488.907 | 45.421 | 7046.634 | 199.538 | 7055.00 | 199.775 |
| 353.08 | 107.62 | 489.441 | 45.471 | 7062.683 | 199.993 | 7071.05 | 200.230 |
| 353.12 | 107.63 | 489.975 | 45.520 | 7078.749 | 200.448 | 7087.12 | 200.685 |
| 353.15 | 107.64 | 490.516 | 45.570 | 7094.834 | 200.903 | 7103.20 | 201.140 |
| 353.18 | 107.65 | 491.061 | 45.621 | 7110.936 | 201.359 | 7119.30 | 201.596 |
| 353.22 | 107.66 | 491.607 | 45.672 | 7127.055 | 201.816 | 7135.42 | 202.052 |
| 353.25 | 107.67 | 492.159 | 45.723 | 7143.193 | 202.273 | 7151.56 | 202.509 |
| 353.28 | 107.68 | 492.718 | 45.775 | 7159.349 | 202.730 | 7167.72 | 202.967 |
| 353.31 | 107.69 | 493.286 | 45.828 | 7175.524 | 203.188 | 7183.89 | 203.425 |
| 353.35 | 107.7 | 493.866 | 45.882 | 7191.718 | 203.647 | 7200.09 | 203.884 |
| 353.38 | 107.71 | 494.465 | 45.937 | 7207.930 | 204.106 | 7216.30 | 204.343 |
| 353.41 | 107.72 | 495.074 | 45.994 | 7224.163 | 204.565 | 7232.53 | 204.802 |
| 353.44 | 107.73 | 495.677 | 46.050 | 7240.415 | 205.026 | 7248.78 | 205.262 |
| 353.48 | 107.74 | 496.275 | 46.106 | 7256.688 | 205.486 | 7265.06 | 205.723 |
| 353.51 | 107.75 | 496.884 | 46.162 | 7272.980 | 205.948 | 7281.35 | 206.185 |
| 353.54 | 107.76 | 497.494 | 46.219 | 7289.292 | 206.410 | 7297.66 | 206.647 |
| 353.58 | 107.77 | 498.098 | 46.275 | 7305.624 | 206.872 | 7313.99 | 207.109 |
| 353.61 | 107.78 | 498.686 | 46.330 | 7321.975 | 207.335 | 7330.34 | 207.572 |
| 353.64 | 107.79 | 499.279 | 46.385 | 7338.346 | 207.799 | 7346.71 | 208.036 |
| 353.67 | 107.8 | 499.879 | 46.440 | 7354.736 | 208.263 | 7363.10 | 208.500 |
| 353.71 | 107.81 | 500.495 | 46.498 | 7371.147 | 208.727 | 7379.51 | 208.964 |
| 353.74 | 107.82 | 501.113 | 46.555 | 7387.577 | 209.193 | 7395.94 | 209.430 |
| 353.77 | 107.83 | 501.734 | 46.613 | 7404.028 | 209.659 | 7412.40 | 209.895 |
| 353.81 | 107.84 | 502.364 | 46.671 | 7420.500 | 210.125 | 7428.87 | 210.362 |
| 353.84 | 107.85 | 502.983 | 46.729 | 7436.992 | 210.592 | 7445.36 | 210.829 |

| Elevation (MSL, ft) | Elevation (MSL, m) | Area (M.Sq.ft) | Area (M.Sq.m) | Live Capacity | | Gross Capacity (Live + Dead) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Volume (M.Cu.ft) | Volume (M.Cu.m) | Volume (M.Cu.ft) | Volume (M.Cu.m) | |
| 353.87 | 107.86 | 503.598 | 46.786 | 7453.504 | 211.060 | 7461.87 | 211.296 | |
| 353.90 | 107.87 | 504.211 | 46.843 | 7470.036 | 211.528 | 7478.40 | 211.765 | |
| 353.94 | 107.88 | 504.826 | 46.900 | 7486.589 | 211.996 | 7494.96 | 212.233 | |
| 353.97 | 107.89 | 505.436 | 46.957 | 7503.161 | 212.466 | 7511.53 | 212.703 | |
| **354.00** | **107.9** | **506.045** | **47.013** | **7519.754** | **212.936** | **7528.12** | **213.172** | **FRL** |
| 354.04 | 107.91 | 506.659 | 47.070 | 7536.366 | 213.406 | 7544.73 | 213.643 | |
| 354.07 | 107.92 | 507.284 | 47.128 | 7552.999 | 213.877 | 7561.37 | 214.114 | |
| 354.10 | 107.93 | 507.911 | 47.186 | 7569.653 | 214.348 | 7578.02 | 214.585 | |
| 354.13 | 107.94 | 508.536 | 47.245 | 7586.327 | 214.821 | 7594.69 | 215.058 | |
| 354.17 | 107.95 | 509.167 | 47.303 | 7603.021 | 215.293 | 7611.39 | 215.530 | |
| 354.20 | 107.96 | 509.802 | 47.362 | 7619.737 | 215.767 | 7628.10 | 216.004 | |
| 354.23 | 107.97 | 510.444 | 47.422 | 7636.473 | 216.241 | 7644.84 | 216.478 | |
| 354.27 | 107.98 | 511.080 | 47.481 | 7653.231 | 216.715 | 7661.60 | 216.952 | |
| 354.30 | 107.99 | 511.705 | 47.539 | 7670.009 | 217.190 | 7678.38 | 217.427 | |
| 354.33 | 108 | 512.322 | 47.596 | 7686.807 | 217.666 | 7695.17 | 217.903 | |

# Annexure - 2

# Mobilisation and Calibration Report

# 2 MOBILISATION

## 2.1 Introduction

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric survey of thirteen reservoirs in the Saurashtra region; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aaji-1, Nara, Tappar, Rudramata, Mitti and Fatehgadh.

This report documents the mobilisation and calibrations carried out by OSaS on board SMB Ocean for bathymetric survey of Bhadar-1 reservoir in Saurashtra region, Gujarat.

The survey team arrived at the survey site on 13th January 2021. After necessary meetings and discussions, the survey team started mobilisation of equipment on 15th January 2021 while the survey boat SMB Ocean was alongside at Val tower, Bhadar-1 dam. DGPS consistency check was done on 14th January through establishing two reference stations (TBM) using RTK systems. The levelling of these TBMs was carried out on the same day with respect to the known level of F.R.L provided by the client. Initial system preparation and equipment checks were completed on 16th January 2021. Bar check has been carried out every day before commencing the survey. The bathymetric and topographic survey commenced on 17th Jan 2021 at Bhadar-1 reservoir. Bathymetric survey was completed on 24th February 2021 and topographic survey was completed on 06th March 2021.

## 2.2 HSE Checks

A safety induction was given by the Party Chief prior to survey, detailing personnel responsibilities in the event of an emergency, life jacket locations, safety gear locations and procedures and signals for emergencies.

Back deck procedures were explained and enforced with no single man operations and all non-essential personnel keeping clear of operations. PPE included safety boots, hard hats and cover-alls for all personnel involved in back deck operations.

## 2.3 Survey Equipment list on SMB Ocean

### 2.3.1 *Navigation and Positioning*

| Item | Quantity |
|---|---|
| Hemisphere DGPS system with cables | 1 |
| Navigation computer with Hypack software | 1 |
| Moxa 8-port cable | 4 |
| Hemisphere RTK system with all accessories | 3 |

### 2.3.2 *Single beam Echo sounder*

| Item | Quantity |
|---|---|
| Odom MK III Single beam echo sounder | 2 |
| Dual frequency transducer and mounting pole | 2 |
| Bar check | 1 |
| MRU-PD | 2 |
| TSS HS-50 Heave sensor | 1 |

### 2.3.3 *Auto Level*

| Item | Quantity |
|---|---|
| Geomax auto level | 1 |

2.3.4 *Power Systems*

| Item | Quantity |
|---|---|
| 2KVA stabilizer | 2 |
| 1 KVA generator | 3 |
| 24V power supply | 5 |
| Exide battery 100AH | 1 |

2.3.5 *Miscellaneous*

| Item | Quantity |
|---|---|
| Monitor | 5 |
| Laptop | 2 |
| LCD monitors | 5 |
| 24V power supply | 5 |
| Helmets / life jackets | 8 |
| Tool box | 1 |
| Tripod and Tribrach | 4 & 3 |
| Exide battery 100AH | 1 |
| Antenna T-section | 2 Sets |
| Echo rolls | 52 nos |
| HP printer | 1 nos |
| UPS | 2 Sets |
| Switch board | 9 Sets |
| Drill machine | 1 Set |

## 2.4 Vessel Offset Diagram

The equipment offsets in the Survey Motor Boat (SMB) Ocean are shown in the figure below:

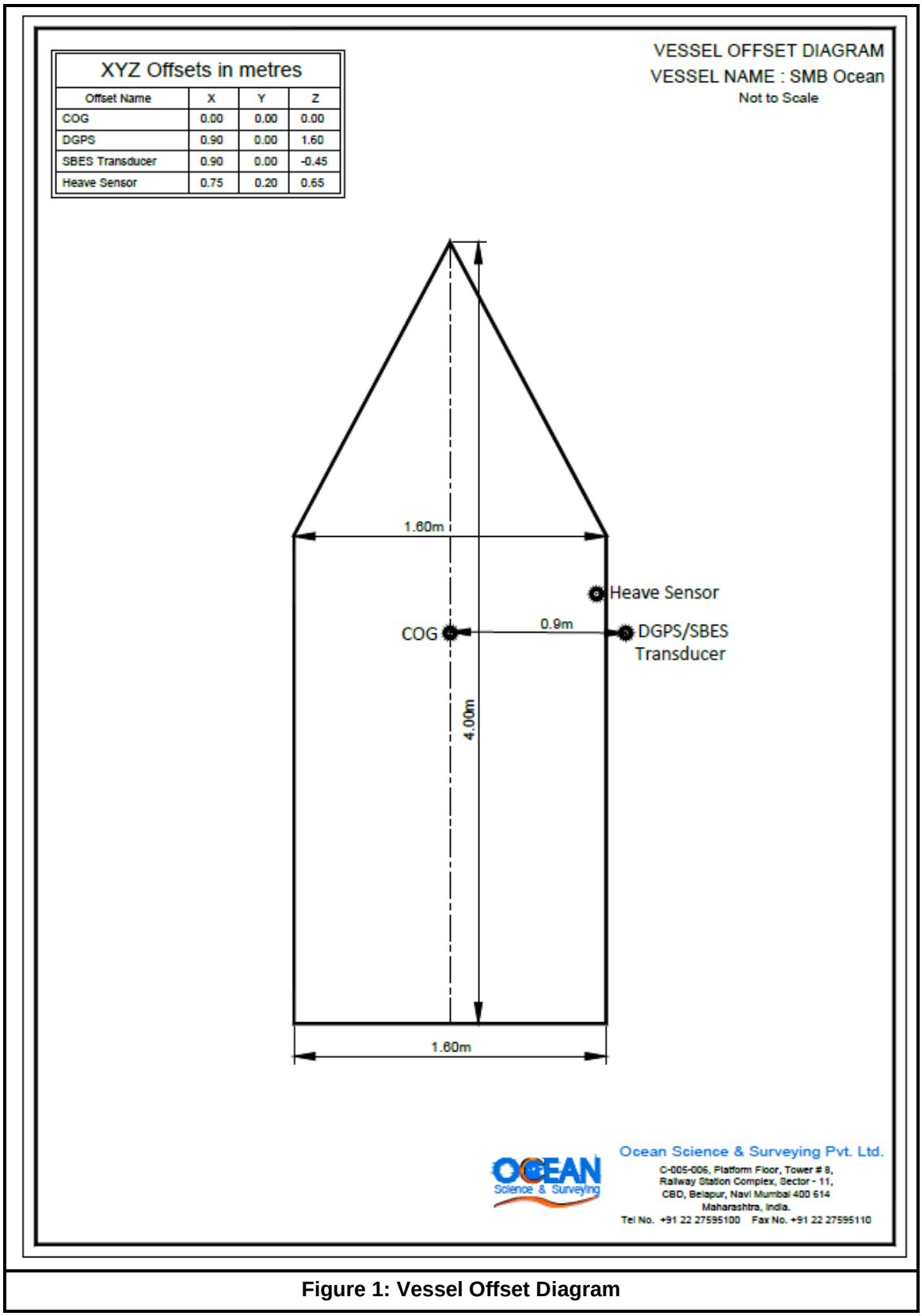



**Figure 1: Vessel Offset Diagram**

# 3 EQUIPMENT CALIBRATIONS

## 3.1 DGPS Calibrations

The details of the DGPS consistency checks are as follows:

In order to determine the integrity and reliability of the positioning system, the system was checked for its consistency during mobilisation.

Two reference stations were established as temporary control points/temporary benchmarks (TMB). The levelling of these TBMs was completed using an auto level, with respect to the known level of F.R.L which is given as 107.90m above MSL, provided by the client. The base stations of the RTK were set up at these positions and two-hour continuous observations using Hemisphere RTK positioning system was conducted to fix the consistency of the position for horizontal control. The system provides real time correction signals, providing centimetre level accuracy. Additional TBMs were established at various parts of the survey area to keep the rover in range with respect to the base station.

The details of reference stations OSaS-BH-TBM-01 and OSaS-BH-TBM-02 are given in **Table 1** and **Table 2**.

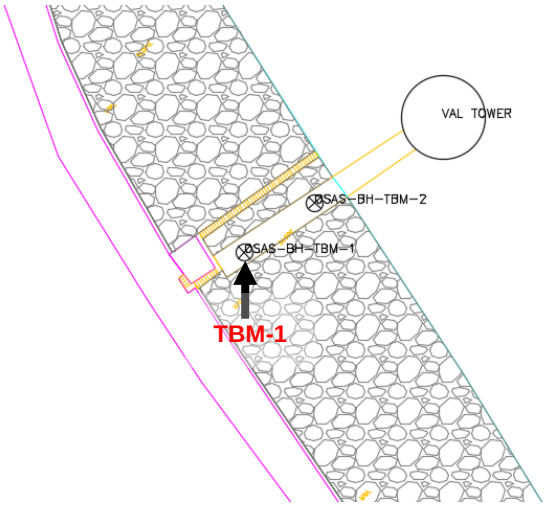
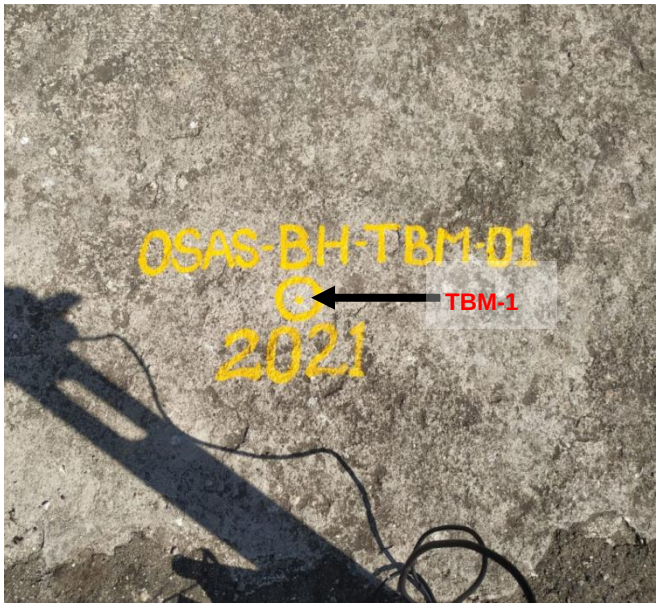
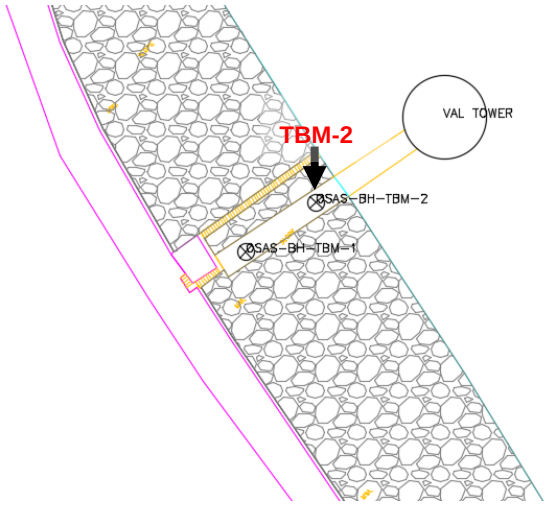
<table>
<tr><td>Station Number:</td><td>OSaS-BH-TBM-01</td><td>Latitude:</td><td>21° 48' 35.984" N</td></tr>
<tr><td>Locality:</td><td>Gondal, Gujarat</td><td>Longitude:</td><td>70° 46' 7.761" E</td></tr>
<tr><td>Geodetic Datum:</td><td>WGS84</td><td>Northing:</td><td>2412845.20 m N</td></tr>
<tr><td>Projection:</td><td>Universal Transverse Mercator</td><td>Easting:</td><td>682842.74 m E</td></tr>
<tr><td>Date:</td><td>17th January 2021</td><td>Elevation:</td><td>112.980m above MSL</td></tr>
<tr><td>Station Description:</td><td colspan="3">A circle with text OSaS-BH-TBM-01 is drawn with yellow paint on the walkway to the Val (valve) tower.</td></tr>
<tr><td>Access:</td><td colspan="3">Road to the top of the reservoir near the spillway. TBM is situated on the walkway to the Val (valve) tower. TBM-1 lies about 28m SW of the Val (valve) tower.</td></tr>
<tr><td colspan="2">Sketch:</td><td colspan="2">Map:</td></tr>
<tr><td colspan="2"> 
</td><td colspan="2"> 
</td></tr>
<tr><td colspan="2"> 
</td><td colspan="2"> 
</td></tr>
</table>

**Table 1: Details of OSaS-BH-TBM-01**

| | | | |
|---|---|---|---|
| **Station Number:** | OSaS-BH-TBM-02 | **Latitude:** | 21° 48' 36.158"N |
| **Locality:** | Gondal, Gujarat | **Longitude:** | 70° 46' 08.048"E |
| **Geodetic Datum:** | WGS84 | **Northing:** | 2412850.62 m N |
| **Projection:** | Universal Transverse Mercator | **Easting:** | 682850.92 m E |
| **Date:** | 17th January 2021 | **Elevation:** | 113.140m above MSL |
| **Station Description:** | A circle with text OSaS-BH-TBM-01 is drawn with yellow paint on the walkway to the Val (valve) tower. | | |
| **Access:** | Road to top of the reservoir near spillway and TBM is situated on the walkway to the Val (valve) tower. TBM-2 lies about 18m SW of the Val (valve) tower. | | |

**Sketch:**




**Map:**

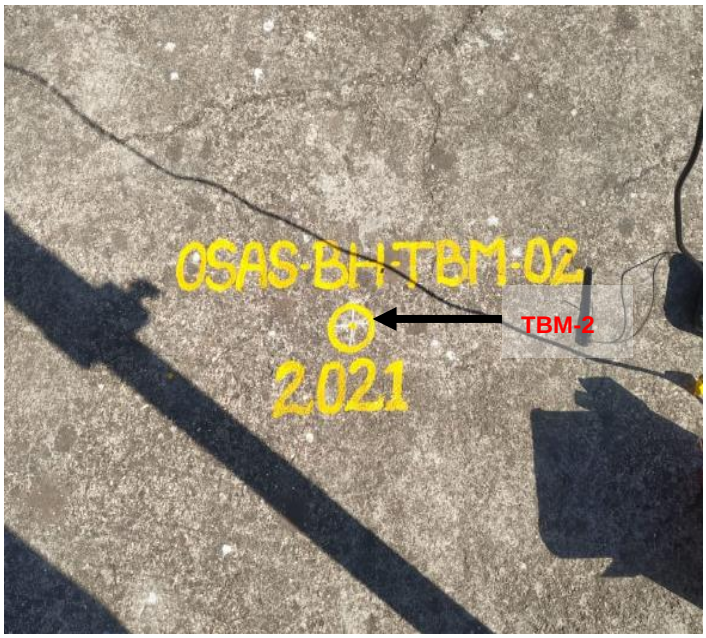





**Table 2: Details of OSaS-BH-TBM-02**

### 3.2 Single Beam Echo Sounder

The average speed of sound through the water column was input to the single beam echo sounder when a bar-check was performed before the start of survey operations. The following **Figure 2** shows the bar check extracts of the Odom MK III echo sounder used in SMB Ocean.

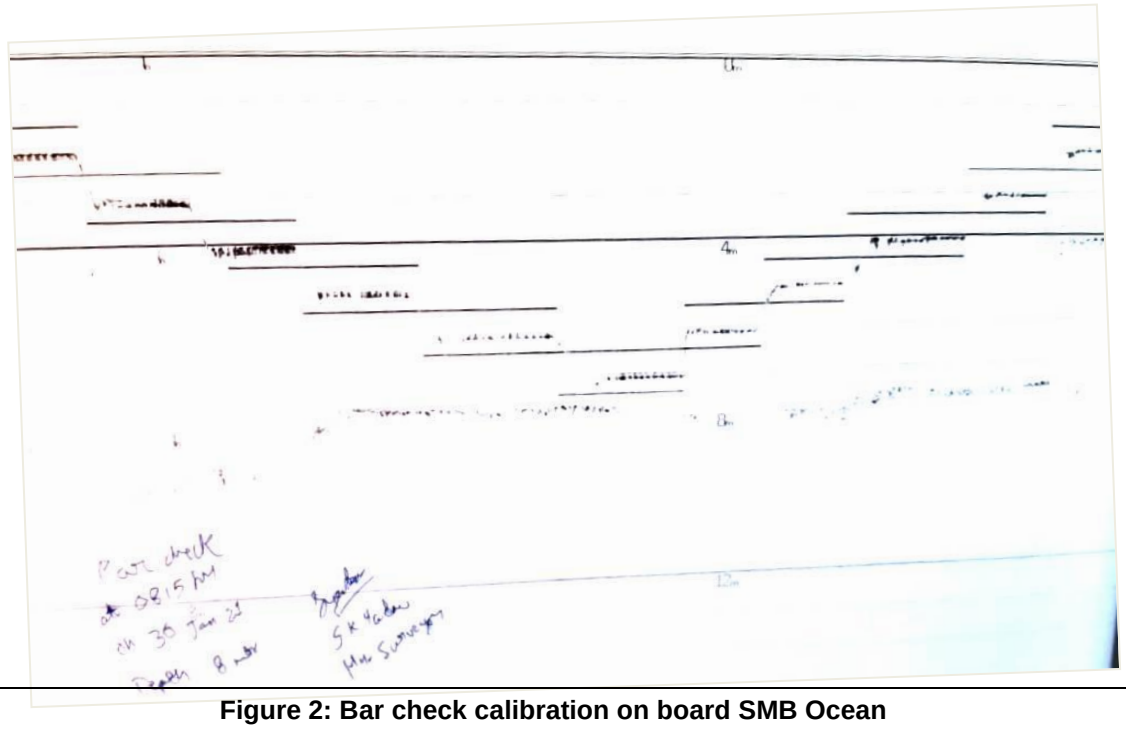


**Figure 2: Bar check calibration on board SMB Ocean**

## 4 CCONCLUSIONS

Mobilisation for this project, including calibration and verification were carried out on board SMB Ocean in a safe and acceptable manner. All systems performed to the specifications throughout the length of the survey.

# Annexure - 3

# Previous Data - 1979

# Bhadar 1 Reservoir

## BHADAR IRRIGATION SCHEME

### ANNEXURE-X

Live Storage Capacity
O.S.L. R.L. : 320.00 Ft., 97.54 MT.
CREST RL : 348.00 FT, 106.07 MT
F.S.L., R.L. 354.00 FT, 107.89 MT
TOP OF DAM RL : 371.00 FT, 113.08 MT

GATE : 35 X 6 = 29 NOS.
Dead Storage : 8.00 MCFT, 0.226 M.Cum
Live Storage : 6640.00 MCFT, 187.912 M.CUM
HFL RL 362.00 FT 110.33 MT

| R.L. as per old Area capacity table | | | | Live | | Total (Live+Dead) | | |
|---|---|---|---|---|---|---|---|---|
| R.L. in Ft | Ft | Mt | R.L. in Mt | Capacity in Mcft | Capacity in M.Cum | Capacity in Mcft | Capacity in M.Cum | Remarks |
| 318.57 | | | 97.1 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 318.60 | | | 97.11 | 0.00 | 0.000 | 0.10 | 0.003 | |
| 318.64 | | | 97.12 | 0.00 | 0.000 | 0.20 | 0.006 | |
| 318.67 | | | 97.13 | 0.00 | 0.000 | 0.30 | 0.008 | |
| 318.70 | | | 97.14 | 0.00 | 0.000 | 0.40 | 0.011 | |
| 318.73 | | | 97.15 | 0.00 | 0.000 | 0.49 | 0.014 | |
| 318.77 | | | 97.16 | 0.00 | 0.000 | 0.59 | 0.017 | |
| 318.80 | | | 97.17 | 0.00 | 0.000 | 0.69 | 0.020 | |
| 318.83 | | | 97.18 | 0.00 | 0.000 | 0.79 | 0.022 | |
| 318.86 | | | 97.19 | 0.00 | 0.000 | 0.89 | 0.025 | |
| 318.90 | | | 97.2 | 0.00 | 0.000 | 0.99 | 0.028 | |
| 318.93 | | | 97.21 | 0.00 | 0.000 | 1.16 | 0.033 | |
| 318.96 | | | 97.22 | 0.00 | 0.000 | 1.33 | 0.038 | |
| 319.00 | | | 97.23 | 0.00 | 0.000 | 1.50 | 0.042 | |
| 319.03 | | | 97.24 | 0.00 | 0.000 | 1.67 | 0.047 | |
| 319.06 | | | 97.25 | 0.00 | 0.000 | 1.84 | 0.052 | |
| 319.09 | | | 97.26 | 0.00 | 0.000 | 2.01 | 0.057 | |
| 319.13 | | | 97.27 | 0.00 | 0.000 | 2.18 | 0.062 | |
| 319.16 | | | 97.28 | 0.00 | 0.000 | 2.34 | 0.066 | |
| 319.19 | | | 97.29 | 0.00 | 0.000 | 2.51 | 0.071 | |
| 319.23 | | | 97.3 | 0.00 | 0.000 | 2.68 | 0.076 | |
| 319.26 | | | 97.31 | 0.00 | 0.000 | 2.93 | 0.083 | |
| 319.29 | | | 97.32 | 0.00 | 0.000 | 3.19 | 0.090 | |
| 319.32 | | | 97.33 | 0.00 | 0.000 | 3.44 | 0.097 | |
| 319.36 | | | 97.34 | 0.00 | 0.000 | 3.69 | 0.104 | |
| 319.39 | | | 97.35 | 0.00 | 0.000 | 3.94 | 0.112 | |
| 319.42 | | | 97.36 | 0.00 | 0.000 | 4.19 | 0.119 | |
| 319.46 | | | 97.37 | 0.00 | 0.000 | 4.44 | 0.126 | |
| 319.49 | | | 97.38 | 0.00 | 0.000 | 4.69 | 0.133 | |
| 319.52 | | | 97.39 | 0.00 | 0.000 | 4.94 | 0.140 | |
| 319.55 | | | 97.4 | 0.00 | 0.000 | 5.19 | 0.147 | |
| 319.59 | | | 97.41 | 0.00 | 0.000 | 5.40 | 0.153 | |
| 319.62 | | | 97.42 | 0.00 | 0.000 | 5.61 | 0.159 | |
| 319.65 | | | 97.43 | 0.00 | 0.000 | 5.82 | 0.165 | |
| 319.69 | | | 97.44 | 0.00 | 0.000 | 6.02 | 0.171 | |
| 319.72 | | | 97.45 | 0.00 | 0.000 | 6.23 | 0.177 | |
| 319.75 | | | 97.46 | 0.00 | 0.000 | 6.44 | 0.182 | |
| 319.78 | | | 97.47 | 0.00 | 0.000 | 6.65 | 0.188 | |
| 319.82 | | | 97.48 | 0.00 | 0.000 | 6.86 | 0.194 | |
| 319.85 | | | 97.49 | 0.00 | 0.000 | 7.07 | 0.200 | |
| 319.88 | | | 97.5 | 0.00 | 0.000 | 7.27 | 0.206 | |
| 319.91 | | | 97.51 | 0.00 | 0.000 | 7.45 | 0.211 | |
| 319.95 | | | 97.52 | 0.00 | 0.000 | 7.63 | 0.216 | |
| 319.98 | | | 97.53 | 0.00 | 0.000 | 7.80 | 0.221 | |
| 320.00 | 320.00 | 97.54 | 97.54 | 0.00 | 0.000 | 8.00 | 0.226 | O.S.L. |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 320.04 | | | 97.55 | 0.57 | 0.016 | 8.57 | 0.242 | |
| 320.07 | | | 97.56 | 1.13 | 0.032 | 9.13 | 0.258 | |
| 320.10 | 320.10 | 97.57 | 97.57 | 1.70 | 0.048 | 9.70 | 0.274 | |
| 320.14 | | | 97.58 | 2.26 | 0.064 | 10.26 | 0.290 | |
| 320.17 | | | 97.59 | 2.83 | 0.080 | 10.83 | 0.306 | |
| 320.20 | 320.20 | 97.60 | 97.60 | 3.40 | 0.096 | 11.40 | 0.322 | |
| 320.24 | | | 97.61 | 3.96 | 0.112 | 11.96 | 0.338 | |
| 320.27 | | | 97.62 | 4.52 | 0.128 | 12.52 | 0.354 | |
| 320.30 | 320.30 | 97.63 | 97.63 | 5.10 | 0.144 | 13.10 | 0.370 | |
| 320.34 | | | 97.64 | 5.65 | 0.160 | 13.65 | 0.386 | |
| 320.37 | | | 97.65 | 6.22 | 0.176 | 14.22 | 0.402 | |
| 320.40 | 320.40 | 97.66 | 97.66 | 6.80 | 0.192 | 14.80 | 0.418 | |
| 320.44 | | | 97.67 | 7.35 | 0.208 | 15.35 | 0.434 | |
| 320.47 | | | 97.68 | 7.91 | 0.224 | 15.91 | 0.450 | |
| 320.50 | 320.50 | 97.69 | 97.69 | 8.50 | 0.240 | 16.50 | 0.466 | |
| 320.53 | | | 97.70 | 9.04 | 0.256 | 17.04 | 0.482 | |
| 320.57 | | | 97.71 | 9.61 | 0.272 | 17.61 | 0.498 | |
| 320.60 | 320.60 | 97.72 | 97.72 | 10.20 | 0.288 | 18.20 | 0.514 | |
| 320.63 | | | 97.73 | 10.75 | 0.304 | 18.75 | 0.530 | |
| 320.67 | | | 97.74 | 11.32 | 0.321 | 19.32 | 0.547 | |
| 320.70 | 320.70 | 97.75 | 97.75 | 11.90 | 0.337 | 19.90 | 0.563 | |
| 320.73 | | | 97.76 | 12.47 | 0.353 | 20.47 | 0.579 | |
| 320.76 | | | 97.77 | 13.03 | 0.369 | 21.03 | 0.595 | |
| 320.80 | 320.80 | 97.78 | 97.78 | 13.60 | 0.385 | 21.60 | 0.611 | |
| 320.83 | | | 97.79 | 14.13 | 0.400 | 22.13 | 0.626 | |
| 320.86 | | | 97.80 | 14.66 | 0.415 | 22.66 | 0.641 | |
| 320.90 | 320.90 | 97.81 | 97.81 | 15.30 | 0.430 | 23.30 | 0.656 | |
| 320.93 | | | 97.82 | 15.79 | 0.447 | 23.79 | 0.673 | |
| 320.96 | | | 97.83 | 16.39 | 0.464 | 24.39 | 0.690 | |
| 321.00 | 321.00 | 97.84 | 97.84 | 17.00 | 0.481 | 25.00 | 0.707 | |
| 321.03 | | | 97.85 | 17.72 | 0.502 | 25.72 | 0.728 | |
| 321.06 | | | 97.86 | 18.45 | 0.522 | 26.45 | 0.748 | |
| 321.10 | 321.10 | 97.87 | 97.87 | 19.20 | 0.543 | 27.20 | 0.769 | |
| 321.12 | | | 97.88 | 19.91 | 0.564 | 27.91 | 0.790 | |
| 321.16 | | | 97.89 | 20.64 | 0.584 | 28.64 | 0.810 | |
| 321.20 | 321.20 | 97.90 | 97.90 | 21.40 | 0.605 | 29.40 | 0.831 | |
| 321.22 | | | 97.91 | 23.77 | 0.673 | 31.77 | 0.899 | |
| 321.26 | | | 97.92 | 26.17 | 0.741 | 34.17 | 0.967 | |
| 321.30 | 321.30 | 97.93 | 97.93 | 23.60 | 0.809 | 31.60 | 1.035 | |
| 321.32 | | | 97.94 | 27.64 | 0.783 | 35.64 | 1.009 | |
| 321.35 | | | 97.95 | 26.71 | 0.756 | 34.71 | 0.982 | |
| 321.40 | 321.40 | 97.96 | 97.96 | 25.80 | 0.730 | 33.80 | 0.956 | |
| 321.42 | | | 97.97 | 26.51 | 0.751 | 34.51 | 0.977 | |
| 321.45 | | | 97.98 | 27.24 | 0.771 | 35.24 | 0.997 | |
| 321.50 | 321.50 | 97.99 | 97.99 | 28.00 | 0.792 | 36.00 | 1.018 | |
| 321.52 | | | 98.00 | 28.97 | 0.820 | 36.97 | 1.046 | |
| 321.55 | | | 98.01 | 29.97 | 0.849 | 37.97 | 1.075 | |
| 321.60 | 321.60 | 98.02 | 98.02 | 31.00 | 0.877 | 39.00 | 1.103 | |
| 321.62 | | | 98.03 | 31.97 | 0.905 | 39.97 | 1.131 | |
| 321.65 | | | 98.04 | 32.97 | 0.934 | 40.97 | 1.160 | |
| 321.70 | 321.70 | 98.05 | 98.05 | 34.00 | 0.962 | 42.00 | 1.188 | |
| 321.72 | | | 98.06 | 34.97 | 0.990 | 42.97 | 1.216 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 321.75 | | | 98.07 | 35.97 | 1.019 | 43.97 | 1.245 | |
| 321.80 | 321.80 | 98.08 | 98.08 | 37.00 | 1.047 | 45.00 | 1.273 | |
| 321.81 | | | 98.09 | 37.98 | 1.075 | 45.98 | 1.301 | |
| 321.85 | | | 98.10 | 38.98 | 1.104 | 46.98 | 1.330 | |
| 321.90 | 321.90 | 98.11 | 98.11 | 40.00 | 1.132 | 48.00 | 1.358 | |
| 321.91 | | | 98.12 | 40.98 | 1.160 | 48.98 | 1.386 | |
| 321.94 | | | 98.13 | 41.98 | 1.189 | 49.98 | 1.415 | |
| 322.00 | 322.00 | 98.14 | 98.14 | 43.00 | 1.217 | 51.00 | 1.443 | |
| 322.01 | | | 98.15 | 43.87 | 1.242 | 51.87 | 1.468 | |
| 322.04 | | | 98.16 | 44.77 | 1.268 | 52.77 | 1.494 | |
| 322.10 | 322.10 | 98.17 | 98.17 | 45.70 | 1.293 | 53.70 | 1.519 | |
| 322.11 | | | 98.18 | 46.57 | 1.319 | 54.57 | 1.545 | |
| 322.14 | | | 98.19 | 47.47 | 1.344 | 55.47 | 1.570 | |
| 322.20 | 322.20 | 98.20 | 98.20 | 48.40 | 1.370 | 56.40 | 1.596 | |
| 322.21 | | | 98.21 | 49.28 | 1.395 | 57.28 | 1.621 | |
| 322.24 | | | 98.22 | 50.17 | 1.421 | 58.17 | 1.647 | |
| 322.30 | 322.30 | 98.23 | 98.23 | 51.10 | 1.446 | 59.10 | 1.672 | |
| 322.31 | | | 98.24 | 51.96 | 1.471 | 59.96 | 1.697 | |
| 322.34 | | | 98.25 | 52.85 | 1.497 | 60.85 | 1.723 | |
| 322.40 | 322.40 | 98.26 | 98.26 | 53.80 | 1.522 | 61.80 | 1.748 | |
| 322.40 | | | 98.27 | 54.66 | 1.548 | 62.66 | 1.774 | |
| 322.44 | | | 98.28 | 55.56 | 1.573 | 63.56 | 1.799 | |
| 322.50 | 322.50 | 98.29 | 98.29 | 56.50 | 1.599 | 64.50 | 1.825 | |
| 322.50 | | | 98.30 | 57.36 | 1.624 | 65.36 | 1.850 | |
| 322.54 | | | 98.31 | 58.26 | 1.650 | 66.26 | 1.876 | |
| 322.60 | 322.60 | 98.32 | 98.32 | 59.20 | 1.675 | 67.20 | 1.901 | |
| 322.60 | | | 98.33 | 60.06 | 1.701 | 68.06 | 1.927 | |
| 322.63 | | | 98.34 | 60.96 | 1.726 | 68.96 | 1.952 | |
| 322.70 | 322.70 | 98.35 | 98.35 | 61.90 | 1.752 | 69.90 | 1.978 | |
| 322.70 | | | 98.36 | 62.77 | 1.777 | 70.77 | 2.003 | |
| 322.73 | | | 98.37 | 63.66 | 1.803 | 71.66 | 2.029 | |
| 322.80 | 322.80 | 98.38 | 98.38 | 64.60 | 1.828 | 72.60 | 2.054 | |
| 322.80 | | | 98.39 | 65.45 | 1.853 | 73.45 | 2.079 | |
| 322.83 | | | 98.40 | 66.34 | 1.879 | 74.34 | 2.105 | |
| 322.90 | 322.90 | 98.41 | 98.41 | 67.30 | 1.904 | 75.30 | 2.130 | |
| 322.90 | | | 98.42 | 68.15 | 1.930 | 76.15 | 2.156 | |
| 322.93 | | | 98.43 | 69.05 | 1.955 | 77.05 | 2.181 | |
| 323.00 | 323.00 | 98.44 | 98.44 | 70.00 | 1.981 | 78.00 | 2.207 | |
| 322.99 | | | 98.45 | 70.65 | 2.001 | 78.65 | 2.227 | |
| 323.03 | | | 98.46 | 71.35 | 2.020 | 79.35 | 2.246 | |
| 323.06 | | 98.47 | 98.47 | 72.04 | 2.040 | 80.04 | 2.266 | |
| 323.10 | 323.10 | 98.48 | 98.48 | 72.80 | 2.060 | 80.80 | 2.286 | |
| 323.13 | | | 98.49 | 73.68 | 2.086 | 81.68 | 2.312 | |
| 323.16 | | | 98.50 | 74.61 | 2.113 | 82.61 | 2.339 | |
| 323.20 | 323.20 | 98.51 | 98.51 | 75.60 | 2.139 | 83.60 | 2.365 | |
| 323.22 | | | 98.52 | 76.48 | 2.166 | 84.48 | 2.392 | |
| 323.26 | | | 98.53 | 77.42 | 2.192 | 85.42 | 2.418 | |
| 323.30 | 323.30 | 98.54 | 98.54 | 78.40 | 2.219 | 86.40 | 2.445 | |
| 323.32 | | | 98.55 | 79.29 | 2.245 | 87.29 | 2.471 | |
| 323.36 | | | 98.56 | 80.22 | 2.272 | 88.22 | 2.498 | |
| 323.40 | 323.40 | 98.57 | 98.57 | 81.20 | 2.298 | 89.20 | 2.524 | |
| 323.42 | | | 98.58 | 82.08 | 2.324 | 90.08 | 2.550 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 323.45 | | | 98.59 | 83.01 | 2.351 | 91.01 | 2.577 | |
| 323.50 | 323.50 | 98.60 | 98.60 | 84.00 | 2.377 | 92.00 | 2.603 | |
| 323.52 | | | 98.61 | 84.74 | 2.400 | 92.74 | 2.626 | |
| 323.55 | | | 98.62 | 85.54 | 2.422 | 93.54 | 2.648 | |
| 323.60 | 323.60 | 98.63 | 98.63 | 86.40 | 2.445 | 94.40 | 2.671 | |
| 323.62 | | | 98.64 | 87.34 | 2.473 | 95.34 | 2.699 | |
| 323.65 | | | 98.65 | 88.35 | 2.502 | 96.35 | 2.728 | |
| 323.70 | 323.70 | 98.66 | 98.66 | 89.60 | 2.530 | 97.60 | 2.756 | |
| 323.72 | | | 98.67 | 90.35 | 2.558 | 98.35 | 2.784 | |
| 323.75 | | | 98.68 | 91.35 | 2.587 | 99.35 | 2.813 | |
| 323.80 | 323.80 | 98.69 | 98.69 | 92.40 | 2.615 | 100.40 | 2.841 | |
| 323.81 | | | 98.70 | 93.28 | 2.641 | 101.28 | 2.867 | |
| 323.85 | | | 98.71 | 94.21 | 2.668 | 102.21 | 2.894 | |
| 323.90 | 323.90 | 98.72 | 98.72 | 95.20 | 2.694 | 103.20 | 2.920 | |
| 323.91 | | | 98.73 | 96.07 | 2.720 | 104.07 | 2.946 | |
| 323.95 | | | 98.74 | 97.00 | 2.747 | 105.00 | 2.973 | |
| 324.00 | 324.00 | 98.72 | 98.75 | 98.00 | 2.773 | 106.00 | 2.999 | |
| 324.01 | | | 98.76 | 99.20 | 2.809 | 107.20 | 3.035 | |
| 324.04 | | | 98.77 | 100.47 | 2.845 | 108.47 | 3.071 | |
| 324.10 | 324.10 | 98.78 | 98.78 | 101.80 | 2.881 | 109.80 | 3.107 | |
| 324.11 | | | 98.79 | 103.00 | 2.917 | 111.00 | 3.143 | |
| 324.14 | | | 98.80 | 104.26 | 2.952 | 112.26 | 3.178 | |
| 324.20 | 324.20 | 98.81 | 98.81 | 105.60 | 2.988 | 113.60 | 3.214 | |
| 324.21 | | | 98.82 | 106.79 | 3.024 | 114.79 | 3.250 | |
| 324.24 | | | 98.83 | 108.06 | 3.060 | 116.06 | 3.286 | |
| 324.30 | 324.30 | 98.84 | 98.84 | 109.40 | 3.096 | 117.40 | 3.322 | |
| 324.31 | | | 98.85 | 110.59 | 3.132 | 118.59 | 3.358 | |
| 324.34 | | | 98.86 | 111.85 | 3.167 | 119.85 | 3.393 | |
| 324.40 | 324.40 | 98.87 | 98.87 | 113.20 | 3.203 | 121.20 | 3.429 | |
| 324.41 | | | 98.88 | 114.38 | 3.239 | 122.38 | 3.465 | |
| 324.44 | | | 98.89 | 115.66 | 3.275 | 123.66 | 3.501 | |
| 324.50 | 324.50 | 98.90 | 98.90 | 117.00 | 3.311 | 125.00 | 3.537 | |
| 324.50 | | | 98.91 | 118.46 | 3.354 | 126.46 | 3.580 | |
| 324.54 | | | 98.92 | 119.99 | 3.398 | 127.99 | 3.624 | |
| 324.60 | 324.60 | 98.93 | 98.93 | 121.60 | 3.441 | 129.60 | 3.667 | |
| 324.60 | | | 98.94 | 123.05 | 3.484 | 131.05 | 3.710 | |
| 324.64 | | | 98.95 | 124.58 | 3.528 | 132.58 | 3.754 | |
| 324.70 | 324.70 | 98.96 | 98.96 | 126.20 | 3.571 | 134.20 | 3.797 | |
| 324.70 | | | 98.97 | 127.65 | 3.615 | 135.65 | 3.841 | |
| 324.73 | | | 98.98 | 129.19 | 3.658 | 137.19 | 3.884 | |
| 324.80 | 324.80 | 98.99 | 98.99 | 130.80 | 3.702 | 138.80 | 3.928 | |
| 324.80 | | | 99.00 | 132.27 | 3.745 | 140.27 | 3.971 | |
| 324.83 | | | 99.01 | 133.80 | 3.789 | 141.80 | 4.015 | |
| 324.90 | 324.90 | 99.02 | 99.02 | 135.40 | 3.832 | 143.40 | 4.058 | |
| 324.90 | | | 99.03 | 136.47 | 3.864 | 144.47 | 4.090 | |
| 324.93 | | | 99.04 | 137.61 | 3.897 | 145.61 | 4.123 | |
| 324.96 | | 99.05 | 99.05 | 138.75 | 3.929 | 146.75 | 4.155 | |
| 325.00 | 325.00 | 99.06 | 99.06 | 140.00 | 3.962 | 148.00 | 4.188 | |
| 325.03 | | | 99.07 | 141.68 | 4.012 | 149.68 | 4.238 | |
| 325.06 | | | 99.08 | 143.45 | 4.062 | 151.45 | 4.288 | |
| 325.10 | 325.10 | 99.09 | 99.09 | 145.30 | 4.112 | 153.30 | 4.338 | |
| 325.13 | | | 99.10 | 146.98 | 4.162 | 154.98 | 4.388 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 325.16 | | | 99.11 | 148.75 | 4.212 | 156.75 | 4.438 | |
| 325.20 | 325.20 | 99.12 | 99.12 | 150.60 | 4.262 | 158.60 | 4.488 | |
| 325.23 | | | 99.13 | 152.28 | 4.312 | 160.28 | 4.538 | |
| 325.26 | | | 99.14 | 154.04 | 4.362 | 162.04 | 4.588 | |
| 325.30 | 325.30 | 99.15 | 99.15 | 155.90 | 4.412 | 163.90 | 4.638 | |
| 325.32 | | | 99.16 | 157.57 | 4.462 | 165.57 | 4.688 | |
| 325.36 | | | 99.17 | 159.34 | 4.512 | 167.34 | 4.738 | |
| 325.40 | 325.40 | 99.18 | 99.18 | 161.20 | 4.562 | 169.20 | 4.788 | |
| 325.42 | | | 99.19 | 162.87 | 4.612 | 170.87 | 4.838 | |
| 325.46 | | | 99.20 | 164.64 | 4.662 | 172.64 | 4.888 | |
| 325.50 | 325.50 | 99.21 | 99.21 | 166.50 | 4.712 | 174.50 | 4.938 | |
| 325.52 | | | 99.22 | 168.17 | 4.762 | 176.17 | 4.988 | |
| 325.55 | | | 99.23 | 169.93 | 4.812 | 177.93 | 5.038 | |
| 325.60 | 325.60 | 99.24 | 99.24 | 171.80 | 4.862 | 179.80 | 5.088 | |
| 325.62 | | | 99.25 | 174.12 | 4.931 | 182.12 | 5.157 | |
| 325.65 | | | 99.26 | 176.55 | 4.999 | 184.55 | 5.225 | |
| 325.70 | 325.70 | 99.27 | 99.27 | 177.10 | 5.068 | 185.10 | 5.294 | |
| 325.72 | | | 99.28 | 180.08 | 5.099 | 188.08 | 5.325 | |
| 325.75 | | | 99.29 | 181.19 | 5.131 | 189.19 | 5.357 | |
| 325.80 | 325.80 | 99.30 | 99.30 | 182.40 | 5.162 | 190.40 | 5.388 | |
| 325.82 | | | 99.31 | 184.06 | 5.212 | 192.06 | 5.438 | |
| 325.85 | | | 99.32 | 185.83 | 5.262 | 193.83 | 5.488 | |
| 325.90 | 325.90 | 99.33 | 99.33 | 187.70 | 5.312 | 195.70 | 5.538 | |
| 325.91 | | | 99.34 | 189.36 | 5.362 | 197.36 | 5.588 | |
| 325.95 | | | 99.35 | 191.12 | 5.412 | 199.12 | 5.638 | |
| 326.00 | 326.00 | 99.36 | 99.36 | 193.00 | 5.462 | 201.00 | 5.688 | |
| 326.01 | | | 99.37 | 194.65 | 5.512 | 202.65 | 5.738 | |
| 326.05 | | | 99.38 | 196.42 | 5.562 | 204.42 | 5.788 | |
| 326.10 | 326.10 | 99.39 | 99.39 | 198.30 | 5.612 | 206.30 | 5.838 | |
| 326.11 | | | 99.40 | 199.95 | 5.662 | 207.95 | 5.888 | |
| 326.14 | | | 99.41 | 201.72 | 5.712 | 209.72 | 5.938 | |
| 326.20 | 326.20 | 99.42 | 99.42 | 198.60 | 5.762 | 206.60 | 5.988 | |
| 326.21 | | | 99.43 | 205.25 | 5.812 | 213.25 | 6.038 | |
| 326.24 | | | 99.44 | 207.01 | 5.862 | 215.01 | 6.088 | |
| 326.30 | 326.30 | 99.45 | 99.45 | 208.90 | 5.912 | 216.90 | 6.138 | |
| 326.31 | | | 99.46 | 210.55 | 5.962 | 218.55 | 6.188 | |
| 326.34 | | | 99.47 | 212.31 | 6.012 | 220.31 | 6.238 | |
| 326.40 | 326.40 | 99.48 | 99.48 | 214.20 | 6.062 | 222.20 | 6.288 | |
| 326.41 | | | 99.49 | 215.41 | 6.100 | 223.41 | 6.326 | |
| 326.44 | | | 99.50 | 216.74 | 6.137 | 224.74 | 6.363 | |
| 326.47 | | 99.51 | 99.51 | 218.07 | 6.175 | 226.07 | 6.401 | |
| 326.50 | 326.50 | 99.52 | 99.52 | 219.50 | 6.212 | 227.50 | 6.438 | |
| 326.54 | | | 99.53 | 221.14 | 6.262 | 229.14 | 6.488 | |
| 326.57 | | | 99.54 | 222.91 | 6.312 | 230.91 | 6.538 | |
| 326.60 | 326.60 | 99.55 | 99.55 | 224.80 | 6.362 | 232.80 | 6.588 | |
| 326.64 | | | 99.56 | 226.44 | 6.412 | 234.44 | 6.638 | |
| 326.67 | | | 99.57 | 228.20 | 6.462 | 236.20 | 6.688 | |
| 326.70 | 326.70 | 99.58 | 99.58 | 230.10 | 6.512 | 238.10 | 6.738 | |
| 326.70 | | | 99.59 | 231.75 | 6.587 | 239.75 | 6.813 | |
| 326.80 | 326.80 | 99.60 | 99.60 | 235.40 | 6.662 | 243.40 | 6.888 | |
| 326.80 | | | 99.61 | 236.57 | 6.699 | 244.57 | 6.925 | |
| 326.83 | | | 99.62 | 237.90 | 6.737 | 245.90 | 6.963 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 326.87 | | | 99.63 | 239.28 | 6.774 | 247.28 | 7.000 | |
| 326.90 | 326.90 | 99.64 | 99.64 | 240.70 | 6.812 | 248.70 | 7.038 | |
| 326.93 | | | 99.65 | 242.33 | 6.862 | 250.33 | 7.088 | |
| 326.96 | | | 99.66 | 244.09 | 6.912 | 252.09 | 7.138 | |
| 327.00 | 327.00 | 99.67 | 99.67 | 246.00 | 6.962 | 254.00 | 7.188 | |
| 327.03 | | | 99.68 | 248.32 | 7.032 | 256.32 | 7.258 | |
| 327.06 | | | 99.69 | 250.78 | 7.101 | 258.78 | 7.327 | |
| 327.10 | 327.10 | 99.70 | 99.70 | 253.40 | 7.171 | 261.40 | 7.397 | |
| 327.13 | | | 99.71 | 255.71 | 7.241 | 263.71 | 7.467 | |
| 327.16 | | | 99.72 | 258.19 | 7.311 | 266.19 | 7.537 | |
| 327.20 | 327.20 | 99.73 | 99.73 | 260.80 | 7.381 | 268.80 | 7.607 | |
| 327.23 | | | 99.74 | 263.12 | 7.451 | 271.12 | 7.677 | |
| 327.26 | | | 99.75 | 265.58 | 7.520 | 273.58 | 7.746 | |
| 327.30 | 327.30 | 99.76 | 99.76 | 268.20 | 7.590 | 276.20 | 7.816 | |
| 327.33 | | | 99.77 | 270.84 | 7.669 | 278.84 | 7.895 | |
| 327.36 | | | 99.78 | 273.64 | 7.749 | 281.64 | 7.975 | |
| 327.40 | 327.40 | 99.79 | 99.79 | 275.60 | 7.828 | 283.60 | 8.054 | |
| 327.42 | | | 99.80 | 278.57 | 7.888 | 286.57 | 8.114 | |
| 327.46 | | | 99.81 | 280.70 | 7.949 | 288.70 | 8.175 | |
| 327.50 | 327.50 | 99.82 | 99.82 | 283.00 | 8.009 | 291.00 | 8.235 | |
| 327.52 | | | 99.83 | 285.30 | 8.079 | 293.30 | 8.305 | |
| 327.56 | | | 99.84 | 287.76 | 8.148 | 295.76 | 8.374 | |
| 327.60 | 327.60 | 99.85 | 99.85 | 290.40 | 8.218 | 298.40 | 8.444 | |
| 327.62 | | | 99.86 | 292.69 | 8.288 | 300.69 | 8.514 | |
| 327.65 | | | 99.87 | 295.16 | 8.358 | 303.16 | 8.584 | |
| 327.70 | 327.70 | 99.88 | 99.88 | 297.80 | 8.428 | 305.80 | 8.654 | |
| 327.72 | | | 99.89 | 300.09 | 8.498 | 308.09 | 8.724 | |
| 327.75 | | | 99.90 | 302.55 | 8.567 | 310.55 | 8.793 | |
| 327.80 | 327.80 | 99.91 | 99.91 | 305.20 | 8.637 | 313.20 | 8.863 | |
| 327.82 | | | 99.92 | 307.47 | 8.707 | 315.47 | 8.933 | |
| 327.85 | | | 99.93 | 309.93 | 8.776 | 317.93 | 9.002 | |
| 327.90 | 327.90 | 99.94 | 99.94 | 312.60 | 8.846 | 320.60 | 9.072 | |
| 327.92 | | | 99.95 | 314.87 | 8.916 | 322.87 | 9.142 | |
| 327.95 | | | 99.96 | 317.34 | 8.986 | 325.34 | 9.212 | |
| 328.00 | 328.00 | 99.97 | 99.97 | 329.00 | 9.056 | 337.00 | 9.282 | |
| 328.01 | | | 99.98 | 321.81 | 9.113 | 329.81 | 9.339 | |
| 328.05 | | | 99.99 | 323.81 | 9.169 | 331.81 | 9.395 | |
| 328.10 | 328.10 | 100.00 | 100.00 | 326.00 | 9.226 | 334.00 | 9.452 | |
| 328.11 | | | 100.01 | 327.80 | 9.282 | 335.80 | 9.508 | |
| 328.15 | | | 100.02 | 329.79 | 9.339 | 337.79 | 9.565 | |
| 328.20 | 328.20 | 100.03 | 100.03 | 332.00 | 9.395 | 340.00 | 9.621 | |
| 328.21 | | | 100.04 | 333.78 | 9.452 | 341.78 | 9.678 | |
| 328.24 | | | 100.05 | 335.78 | 9.508 | 343.78 | 9.734 | |
| 328.30 | 328.30 | 100.06 | 100.06 | 338.00 | 9.565 | 346.00 | 9.791 | |
| 328.31 | | | 100.07 | 339.79 | 9.622 | 347.79 | 9.848 | |
| 328.34 | | | 100.08 | 341.79 | 9.678 | 349.79 | 9.904 | |
| 328.40 | 328.40 | 100.09 | 100.09 | 344.00 | 9.735 | 352.00 | 9.961 | |
| 328.41 | | | 100.10 | 345.30 | 9.778 | 353.30 | 10.004 | |
| 328.44 | | | 100.11 | 346.80 | 9.820 | 354.80 | 10.046 | |
| 328.47 | | 100.12 | 100.12 | 348.31 | 9.863 | 356.31 | 10.089 | |
| 328.50 | 328.50 | 100.13 | 100.13 | 350.00 | 9.905 | 358.00 | 10.131 | |
| 328.54 | | | 100.14 | 351.79 | 9.962 | 359.79 | 10.188 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 328.57 | | | 100.15 | 353.79 | 10.018 | 361.79 | 10.244 | |
| 328.60 | 328.60 | 100.16 | 100.16 | 356.00 | 10.075 | 364.00 | 10.301 | |
| 328.64 | | | 100.17 | 357.80 | 10.132 | 365.80 | 10.358 | |
| 328.67 | | | 100.18 | 359.80 | 10.188 | 367.80 | 10.414 | |
| 328.70 | 328.70 | 100.19 | 100.19 | 362.00 | 10.245 | 370.00 | 10.471 | |
| 328.74 | | | 100.20 | 363.79 | 10.301 | 371.79 | 10.527 | |
| 328.77 | | | 100.21 | 365.78 | 10.358 | 373.78 | 10.584 | |
| 328.80 | 328.80 | 100.22 | 100.22 | 368.00 | 10.414 | 376.00 | 10.640 | |
| 328.83 | | | 100.23 | 369.77 | 10.471 | 377.77 | 10.697 | |
| 328.87 | | | 100.24 | 371.77 | 10.527 | 379.77 | 10.753 | |
| 328.90 | 328.90 | 100.25 | 100.25 | 374.00 | 10.584 | 382.00 | 10.810 | |
| 328.93 | | | 100.26 | 375.77 | 10.641 | 383.77 | 10.867 | |
| 328.97 | | | 100.27 | 377.77 | 10.697 | 385.77 | 10.923 | |
| 329.00 | 329.00 | 100.28 | 100.28 | 380.00 | 10.754 | 388.00 | 10.980 | |
| 329.03 | | | 100.29 | 382.01 | 10.817 | 390.01 | 11.043 | |
| 329.06 | | | 100.30 | 384.25 | 10.881 | 392.25 | 11.107 | |
| 329.10 | 329.10 | 100.31 | 100.31 | 386.70 | 10.944 | 394.70 | 11.170 | |
| 329.13 | | | 100.32 | 388.71 | 11.007 | 396.71 | 11.233 | |
| 329.16 | | | 100.33 | 390.93 | 11.070 | 398.93 | 11.296 | |
| 329.20 | 329.20 | 100.34 | 100.34 | 393.40 | 11.133 | 401.40 | 11.359 | |
| 329.23 | | | 100.35 | 395.39 | 11.196 | 403.39 | 11.422 | |
| 329.26 | | | 100.36 | 397.63 | 11.260 | 405.63 | 11.486 | |
| 329.30 | 329.30 | 100.37 | 100.37 | 400.10 | 11.323 | 408.10 | 11.549 | |
| 329.33 | | | 100.38 | 402.09 | 11.386 | 410.09 | 11.612 | |
| 329.36 | | | 100.39 | 404.32 | 11.449 | 412.32 | 11.675 | |
| 329.40 | 329.40 | 100.40 | 100.40 | 406.80 | 11.512 | 414.80 | 11.738 | |
| 329.43 | | | 100.41 | 408.81 | 11.576 | 416.81 | 11.802 | |
| 329.46 | | | 100.42 | 411.09 | 11.641 | 419.09 | 11.867 | |
| 329.50 | 329.50 | 100.43 | 100.43 | 413.50 | 11.705 | 421.50 | 11.931 | |
| 329.52 | | | 100.44 | 415.56 | 11.767 | 423.56 | 11.993 | |
| 329.56 | | | 100.45 | 417.76 | 11.830 | 425.76 | 12.056 | |
| 329.60 | 329.60 | 100.46 | 100.46 | 420.20 | 11.892 | 428.20 | 12.118 | |
| 329.62 | | | 100.47 | 422.19 | 11.955 | 430.19 | 12.181 | |
| 329.65 | | | 100.48 | 424.41 | 12.018 | 432.41 | 12.244 | |
| 329.70 | 329.70 | 100.49 | 100.49 | 426.90 | 12.081 | 434.90 | 12.307 | |
| 329.72 | | | 100.50 | 428.86 | 12.144 | 436.86 | 12.370 | |
| 329.75 | | | 100.51 | 431.09 | 12.207 | 439.09 | 12.433 | |
| 329.80 | 329.80 | 100.52 | 100.52 | 433.60 | 12.270 | 441.60 | 12.496 | |
| 329.82 | | | 100.53 | 435.55 | 12.333 | 443.55 | 12.559 | |
| 329.85 | | | 100.54 | 437.78 | 12.397 | 445.78 | 12.623 | |
| 329.90 | 329.90 | 100.55 | 100.55 | 440.30 | 12.460 | 448.30 | 12.686 | |
| 329.92 | | | 100.56 | 442.26 | 12.523 | 450.26 | 12.749 | |
| 329.95 | | | 100.57 | 444.49 | 12.587 | 452.49 | 12.813 | |
| 330.00 | 330.00 | 100.58 | 100.58 | 447.00 | 12.650 | 455.00 | 12.876 | |
| 330.02 | | | 100.59 | 449.50 | 12.728 | 457.50 | 12.954 | |
| 330.05 | | | 100.60 | 452.26 | 12.807 | 460.26 | 13.033 | |
| 330.10 | 330.10 | 100.61 | 100.61 | 453.30 | 12.885 | 461.30 | 13.111 | |
| 330.11 | | | 100.62 | 457.80 | 12.963 | 465.80 | 13.189 | |
| 330.15 | | | 100.63 | 460.56 | 13.042 | 468.56 | 13.268 | |
| 330.20 | 330.20 | 100.64 | 100.64 | 463.60 | 13.120 | 471.60 | 13.346 | |
| 330.21 | | | 100.65 | 466.09 | 13.198 | 474.09 | 13.424 | |
| 330.25 | | | 100.66 | 468.86 | 13.277 | 476.86 | 13.503 | |

| R.L. in Ft | R.L. as per old Area capacity table | | R.L. in Mt | Live | | Total (Live+Dead) | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | Ft | Mt | | Capacity in Mcft | Capacity in M.Cum | Capacity in Mcft | Capacity in M.Cum | |
| 330.30 | 330.30 | 100.67 | 100.67 | 471.90 | 13.355 | 479.90 | 13.581 | |
| 330.31 | | | 100.68 | 474.39 | 13.433 | 482.39 | 13.659 | |
| 330.34 | | | 100.69 | 477.16 | 13.512 | 485.16 | 13.738 | |
| 330.40 | 330.40 | 100.70 | 100.70 | 480.20 | 13.590 | 488.20 | 13.816 | |
| 330.41 | | | 100.71 | 482.00 | 13.649 | 490.00 | 13.875 | |
| 330.44 | | | 100.72 | 484.07 | 13.707 | 492.07 | 13.933 | |
| 330.47 | | 100.73 | 100.73 | 486.15 | 13.766 | 494.15 | 13.992 | |
| 330.50 | 330.50 | 100.74 | 100.74 | 488.50 | 13.824 | 496.50 | 14.050 | |
| 330.54 | | | 100.75 | 490.96 | 13.902 | 498.96 | 14.128 | |
| 330.57 | | | 100.76 | 493.72 | 13.981 | 501.72 | 14.207 | |
| 330.60 | 330.60 | 100.77 | 100.77 | 496.80 | 14.059 | 504.80 | 14.285 | |
| 330.64 | | | 100.78 | 499.26 | 14.137 | 507.26 | 14.363 | |
| 330.67 | | | 100.79 | 502.02 | 14.216 | 510.02 | 14.442 | |
| 330.70 | 330.70 | 100.80 | 100.80 | 505.10 | 14.294 | 513.10 | 14.520 | |
| 330.74 | | | 100.81 | 507.55 | 14.372 | 515.55 | 14.598 | |
| 330.77 | | | 100.82 | 510.32 | 14.451 | 518.32 | 14.677 | |
| 330.80 | 330.80 | 100.83 | 100.83 | 513.40 | 14.529 | 521.40 | 14.755 | |
| 330.84 | | | 100.84 | 515.85 | 14.607 | 523.85 | 14.833 | |
| 330.87 | | | 100.85 | 518.62 | 14.686 | 526.62 | 14.912 | |
| 330.90 | 330.90 | 100.86 | 100.86 | 521.70 | 14.764 | 529.70 | 14.990 | |
| 330.93 | | | 100.87 | 524.15 | 14.842 | 532.15 | 15.068 | |
| 330.97 | | | 100.88 | 526.92 | 14.921 | 534.92 | 15.147 | |
| 331.00 | 331.00 | 100.89 | 100.89 | 530.00 | 14.999 | 538.00 | 15.225 | |
| 331.03 | | | 100.90 | 532.62 | 15.082 | 540.62 | 15.308 | |
| 331.07 | | | 100.91 | 535.55 | 15.165 | 543.55 | 15.391 | |
| 331.10 | 331.10 | 100.92 | 100.92 | 538.30 | 15.248 | 546.30 | 15.474 | |
| 331.13 | | | 100.93 | 541.08 | 15.322 | 549.08 | 15.548 | |
| 331.16 | | | 100.94 | 543.68 | 15.395 | 551.68 | 15.621 | |
| 331.20 | 331.20 | 100.95 | 100.95 | 546.60 | 15.469 | 554.60 | 15.695 | |
| 331.23 | | | 100.96 | 549.05 | 15.547 | 557.05 | 15.773 | |
| 331.26 | | | 100.97 | 551.82 | 15.626 | 559.82 | 15.852 | |
| 331.30 | 331.30 | 100.98 | 100.98 | 554.90 | 15.704 | 562.90 | 15.930 | |
| 331.33 | | | 100.99 | 557.34 | 15.782 | 565.34 | 16.008 | |
| 331.36 | | | 101.00 | 560.09 | 15.860 | 568.09 | 16.086 | |
| 331.40 | 331.40 | 101.01 | 101.01 | 563.20 | 15.938 | 571.20 | 16.164 | |
| 331.43 | | | 101.02 | 565.65 | 16.017 | 573.65 | 16.243 | |
| 331.46 | | | 101.03 | 568.45 | 16.097 | 576.45 | 16.323 | |
| 331.50 | 331.50 | 101.04 | 101.04 | 571.50 | 16.176 | 579.50 | 16.402 | |
| 331.52 | | | 101.05 | 574.85 | 16.278 | 582.85 | 16.504 | |
| 331.56 | | | 101.06 | 578.45 | 16.380 | 586.45 | 16.606 | |
| 331.60 | 331.60 | 101.07 | 101.07 | 582.40 | 16.482 | 590.40 | 16.708 | |
| 331.62 | | | 101.08 | 585.68 | 16.585 | 593.68 | 16.811 | |
| 331.66 | | | 101.09 | 589.31 | 16.687 | 597.31 | 16.913 | |
| 331.70 | 331.70 | 101.10 | 101.10 | 593.30 | 16.790 | 601.30 | 17.016 | |
| 331.72 | | | 101.11 | 596.57 | 16.893 | 604.57 | 17.119 | |
| 331.75 | | | 101.12 | 600.21 | 16.996 | 608.21 | 17.222 | |
| 331.80 | 331.80 | 101.13 | 101.13 | 604.20 | 17.099 | 612.20 | 17.325 | |
| 331.82 | | | 101.14 | 610.97 | 17.301 | 618.97 | 17.527 | |
| 331.85 | | | 101.15 | 618.09 | 17.502 | 626.09 | 17.728 | |
| 331.90 | 331.90 | 101.16 | 101.16 | 615.10 | 17.704 | 623.10 | 17.930 | |
| 331.92 | | | 101.17 | 625.35 | 17.708 | 633.35 | 17.934 | |
| 331.95 | | | 101.18 | 625.49 | 17.712 | 633.49 | 17.938 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 332.00 | 332.00 | 101.19 | 101.19 | 626.00 | 17.716 | 634.00 | 17.942 | |
| 332.02 | | | 101.20 | 629.30 | 17.820 | 637.30 | 18.046 | |
| 332.05 | | | 101.21 | 632.96 | 17.923 | 640.96 | 18.149 | |
| 332.10 | 332.10 | 101.22 | 101.22 | 637.60 | 18.027 | 645.60 | 18.253 | |
| 332.12 | | | 101.23 | 640.68 | 18.142 | 648.68 | 18.368 | |
| 332.15 | | | 101.24 | 644.74 | 18.257 | 652.74 | 18.483 | |
| 332.20 | 332.20 | 101.25 | 101.25 | 649.20 | 18.372 | 657.20 | 18.598 | |
| 332.21 | | | 101.26 | 652.67 | 18.482 | 660.67 | 18.708 | |
| 332.25 | | | 101.27 | 656.55 | 18.591 | 664.55 | 18.817 | |
| 332.30 | 332.30 | 101.28 | 101.28 | 660.80 | 18.701 | 668.80 | 18.927 | |
| 332.31 | | | 101.29 | 664.28 | 18.810 | 672.28 | 19.036 | |
| 332.35 | | | 101.30 | 668.14 | 18.920 | 676.14 | 19.146 | |
| 332.40 | 332.40 | 101.31 | 101.31 | 672.40 | 19.029 | 680.40 | 19.255 | |
| 332.41 | | | 101.32 | 674.90 | 19.111 | 682.90 | 19.337 | |
| 332.44 | | | 101.33 | 677.79 | 19.193 | 685.79 | 19.419 | |
| 332.48 | | 101.34 | 101.34 | 680.70 | 19.275 | 688.70 | 19.501 | |
| 332.50 | 332.50 | 101.35 | 101.35 | 684.00 | 19.357 | 692.00 | 19.583 | |
| 332.54 | | | 101.36 | 687.52 | 19.468 | 695.52 | 19.694 | |
| 332.57 | | | 101.37 | 691.45 | 19.580 | 699.45 | 19.806 | |
| 332.60 | 332.60 | 101.38 | 101.38 | 695.80 | 19.691 | 703.80 | 19.917 | |
| 332.64 | | | 101.39 | 699.31 | 19.802 | 707.31 | 20.028 | |
| 332.67 | | | 101.40 | 703.24 | 19.914 | 711.24 | 20.140 | |
| 332.70 | 332.70 | 101.41 | 101.41 | 707.60 | 20.025 | 715.60 | 20.251 | |
| 332.74 | | | 101.42 | 711.11 | 20.136 | 719.11 | 20.362 | |
| 332.77 | | | 101.43 | 715.04 | 20.248 | 723.04 | 20.474 | |
| 332.80 | 332.80 | 101.44 | 101.44 | 719.40 | 20.359 | 727.40 | 20.585 | |
| 332.84 | | | 101.45 | 722.90 | 20.470 | 730.90 | 20.696 | |
| 332.87 | | | 101.46 | 726.83 | 20.582 | 734.83 | 20.808 | |
| 332.90 | 332.90 | 101.47 | 101.47 | 731.20 | 20.693 | 739.20 | 20.919 | |
| 332.94 | | | 101.48 | 734.70 | 20.804 | 742.70 | 21.030 | |
| 332.97 | | | 101.49 | 738.63 | 20.916 | 746.63 | 21.142 | |
| 333.00 | 333.00 | 101.50 | 101.50 | 743.00 | 21.027 | 751.00 | 21.253 | |
| 333.03 | | | 101.51 | 747.46 | 21.166 | 755.46 | 21.392 | |
| 333.07 | | | 101.52 | 752.36 | 21.304 | 760.36 | 21.530 | |
| 333.10 | 333.10 | 101.53 | 101.53 | 757.70 | 21.443 | 765.70 | 21.669 | |
| 333.13 | | | 101.54 | 762.15 | 21.582 | 770.15 | 21.808 | |
| 333.17 | | | 101.55 | 767.05 | 21.720 | 775.05 | 21.946 | |
| 333.20 | 333.20 | 101.56 | 101.56 | 772.40 | 21.859 | 780.40 | 22.085 | |
| 333.23 | | | 101.57 | 776.84 | 21.998 | 784.84 | 22.224 | |
| 333.26 | | | 101.58 | 781.74 | 22.136 | 789.74 | 22.362 | |
| 333.30 | 333.30 | 101.59 | 101.59 | 787.10 | 22.275 | 795.10 | 22.501 | |
| 333.33 | | | 101.60 | 791.53 | 22.414 | 799.53 | 22.640 | |
| 333.36 | | | 101.61 | 796.43 | 22.552 | 804.43 | 22.778 | |
| 333.40 | 333.40 | 101.62 | 101.62 | 801.80 | 22.691 | 809.80 | 22.917 | |
| 333.43 | | | 101.63 | 806.22 | 22.830 | 814.22 | 23.056 | |
| 333.46 | | | 101.64 | 811.12 | 22.968 | 819.12 | 23.194 | |
| 333.50 | 333.50 | 101.65 | 101.65 | 816.50 | 23.107 | 824.50 | 23.333 | |
| 333.53 | | | 101.66 | 820.91 | 23.246 | 828.91 | 23.472 | |
| 333.56 | | | 101.67 | 825.81 | 23.384 | 833.81 | 23.610 | |
| 333.60 | 333.60 | 101.68 | 101.68 | 831.20 | 23.523 | 839.20 | 23.749 | |
| 333.62 | | | 101.69 | 835.93 | 23.671 | 843.93 | 23.897 | |
| 333.66 | | | 101.70 | 841.16 | 23.819 | 849.16 | 24.045 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 333.70 | 333.70 | 101.71 | 101.71 | 845.90 | 23.967 | 853.90 | 24.193 | |
| 333.72 | | | 101.72 | 850.95 | 24.096 | 858.95 | 24.322 | |
| 333.76 | | | 101.73 | 855.52 | 24.226 | 863.52 | 24.452 | |
| 333.80 | 333.80 | 101.74 | 101.74 | 860.60 | 24.355 | 868.60 | 24.581 | |
| 333.82 | | | 101.75 | 864.99 | 24.494 | 872.99 | 24.720 | |
| 333.85 | | | 101.76 | 869.88 | 24.632 | 877.88 | 24.858 | |
| 333.90 | 333.90 | 101.77 | 101.77 | 875.30 | 24.771 | 883.30 | 24.997 | |
| 333.92 | | | 101.78 | 879.68 | 24.910 | 887.68 | 25.136 | |
| 333.95 | | | 101.79 | 884.57 | 25.048 | 892.57 | 25.274 | |
| 334.00 | 334.00 | 101.80 | 101.80 | 890.00 | 25.187 | 898.00 | 25.413 | |
| 334.02 | | | 101.81 | 894.20 | 25.321 | 902.20 | 25.547 | |
| 334.05 | | | 101.82 | 898.93 | 25.455 | 906.93 | 25.681 | |
| 334.10 | 334.10 | 101.83 | 101.83 | 904.20 | 25.589 | 912.20 | 25.815 | |
| 334.12 | | | 101.84 | 908.40 | 25.723 | 916.40 | 25.949 | |
| 334.15 | | | 101.85 | 913.13 | 25.857 | 921.13 | 26.083 | |
| 334.20 | 334.20 | 101.86 | 101.86 | 918.40 | 25.991 | 926.40 | 26.217 | |
| 334.22 | | | 101.87 | 922.58 | 26.125 | 930.58 | 26.351 | |
| 334.25 | | | 101.88 | 927.30 | 26.258 | 935.30 | 26.484 | |
| 334.30 | 334.30 | 101.89 | 101.89 | 932.60 | 26.392 | 940.60 | 26.618 | |
| 334.31 | | | 101.90 | 936.76 | 26.526 | 944.76 | 26.752 | |
| 334.35 | | | 101.91 | 941.49 | 26.660 | 949.49 | 26.886 | |
| 334.40 | 334.40 | 101.92 | 101.92 | 946.80 | 26.794 | 954.80 | 27.020 | |
| 334.41 | | | 101.93 | 949.78 | 26.895 | 957.78 | 27.121 | |
| 334.44 | | | 101.94 | 953.33 | 26.995 | 961.33 | 27.221 | |
| 334.48 | | 101.95 | 101.95 | 956.90 | 27.096 | 964.90 | 27.322 | |
| 334.50 | 334.50 | 101.96 | 101.96 | 961.00 | 27.196 | 969.00 | 27.422 | |
| 334.54 | | | 101.97 | 965.15 | 27.330 | 973.15 | 27.556 | |
| 334.58 | | | 101.98 | 969.88 | 27.464 | 977.88 | 27.690 | |
| 334.60 | 334.60 | 101.99 | 101.99 | 975.20 | 27.598 | 983.20 | 27.824 | |
| 334.64 | | | 102.00 | 979.35 | 27.732 | 987.35 | 27.958 | |
| 334.67 | | | 102.01 | 984.08 | 27.866 | 992.08 | 28.092 | |
| 334.70 | 334.70 | 102.02 | 102.02 | 989.40 | 28.000 | 997.40 | 28.226 | |
| 334.74 | | | 102.03 | 993.54 | 28.134 | 1001.54 | 28.360 | |
| 334.77 | | | 102.04 | 998.27 | 28.268 | 1006.27 | 28.494 | |
| 334.80 | 334.80 | 102.05 | 102.05 | 1003.60 | 28.402 | 1011.60 | 28.628 | |
| 334.84 | | | 102.06 | 1007.74 | 28.536 | 1015.74 | 28.762 | |
| 334.87 | | | 102.07 | 1012.47 | 28.670 | 1020.47 | 28.896 | |
| 334.90 | 334.90 | 102.08 | 102.08 | 1017.80 | 28.804 | 1025.80 | 29.030 | |
| 334.94 | | | 102.09 | 1021.92 | 28.938 | 1029.92 | 29.164 | |
| 334.97 | | | 102.10 | 1026.64 | 29.071 | 1034.64 | 29.297 | |
| 335.00 | 335.00 | 102.11 | 102.11 | 1032.00 | 29.205 | 1040.00 | 29.431 | |
| 335.04 | | | 102.12 | 1035.84 | 29.332 | 1043.84 | 29.558 | |
| 335.07 | | | 102.13 | 1040.31 | 29.458 | 1048.31 | 29.684 | |
| 335.10 | 335.10 | 102.14 | 102.14 | 1045.40 | 29.585 | 1053.40 | 29.811 | |
| 335.13 | | | 102.15 | 1049.25 | 29.711 | 1057.25 | 29.937 | |
| 335.17 | | | 102.16 | 1053.71 | 29.838 | 1061.71 | 30.064 | |
| 335.20 | 335.20 | 102.17 | 102.17 | 1058.80 | 29.964 | 1066.80 | 30.190 | |
| 335.23 | | | 102.18 | 1062.63 | 30.090 | 1070.63 | 30.316 | |
| 335.26 | | | 102.19 | 1067.09 | 30.217 | 1075.09 | 30.443 | |
| 335.30 | 335.30 | 102.20 | 102.20 | 1072.20 | 30.343 | 1080.20 | 30.569 | |
| 335.33 | | | 102.21 | 1076.01 | 30.469 | 1084.01 | 30.695 | |
| 335.36 | | | 102.22 | 1080.48 | 30.596 | 1088.48 | 30.822 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 335.40 | 335.40 | 102.23 | 102.23 | 1085.60 | 30.722 | 1093.60 | 30.948 | |
| 335.43 | | | 102.24 | 1089.41 | 30.849 | 1097.41 | 31.075 | |
| 335.46 | | | 102.25 | 1093.88 | 30.975 | 1101.88 | 31.201 | |
| 335.50 | 335.50 | 102.26 | 102.26 | 1099.00 | 31.102 | 1107.00 | 31.328 | |
| 335.53 | | | 102.27 | 1102.82 | 31.228 | 1110.82 | 31.454 | |
| 335.56 | | | 102.28 | 1107.28 | 31.355 | 1115.28 | 31.581 | |
| 335.60 | 335.60 | 102.29 | 102.29 | 1112.40 | 31.481 | 1120.40 | 31.707 | |
| 335.63 | | | 102.30 | 1116.20 | 31.607 | 1124.20 | 31.833 | |
| 335.66 | | | 102.31 | 1120.66 | 31.734 | 1128.66 | 31.960 | |
| 335.70 | 335.70 | 102.32 | 102.32 | 1125.80 | 31.860 | 1133.80 | 32.086 | |
| 335.72 | | | 102.33 | 1129.59 | 31.986 | 1137.59 | 32.212 | |
| 335.76 | | | 102.34 | 1134.05 | 32.113 | 1142.05 | 32.339 | |
| 335.80 | 335.80 | 102.35 | 102.35 | 1139.20 | 32.239 | 1147.20 | 32.465 | |
| 335.82 | | | 102.36 | 1142.97 | 32.365 | 1150.97 | 32.591 | |
| 335.86 | | | 102.37 | 1147.43 | 32.492 | 1155.43 | 32.718 | |
| 335.90 | 335.90 | 102.38 | 102.38 | 1152.60 | 32.618 | 1160.60 | 32.844 | |
| 335.92 | | | 102.39 | 1156.37 | 32.745 | 1164.37 | 32.971 | |
| 335.95 | | | 102.40 | 1160.84 | 32.871 | 1168.84 | 33.097 | |
| 336.00 | 336.00 | 102.41 | 102.41 | 1166.00 | 32.998 | 1174.00 | 33.224 | |
| 336.02 | | | 102.42 | 1170.27 | 33.138 | 1178.27 | 33.364 | |
| 336.05 | | | 102.43 | 1175.23 | 33.279 | 1183.23 | 33.505 | |
| 336.10 | 336.10 | 102.44 | 102.44 | 1180.90 | 33.419 | 1188.90 | 33.645 | |
| 336.12 | | | 102.45 | 1185.15 | 33.560 | 1193.15 | 33.786 | |
| 336.15 | | | 102.46 | 1190.12 | 33.700 | 1198.12 | 33.926 | |
| 336.20 | 336.20 | 102.47 | 102.47 | 1195.80 | 33.841 | 1203.80 | 34.067 | |
| 336.22 | | | 102.48 | 1200.05 | 33.982 | 1208.05 | 34.208 | |
| 336.25 | | | 102.49 | 1205.02 | 34.122 | 1213.02 | 34.348 | |
| 336.30 | 336.30 | 102.50 | 102.50 | 1210.70 | 34.263 | 1218.70 | 34.489 | |
| 336.31 | | | 102.51 | 1214.94 | 34.403 | 1222.94 | 34.629 | |
| 336.35 | | | 102.52 | 1219.90 | 34.544 | 1227.90 | 34.770 | |
| 336.40 | 336.40 | 102.53 | 102.53 | 1225.60 | 34.684 | 1233.60 | 34.910 | |
| 336.41 | | | 102.54 | 1229.82 | 34.825 | 1237.82 | 35.051 | |
| 336.45 | | | 102.55 | 1234.79 | 34.965 | 1242.79 | 35.191 | |
| 336.50 | 336.50 | 102.56 | 102.56 | 1240.50 | 35.106 | 1248.50 | 35.332 | |
| 336.51 | | | 102.57 | 1244.72 | 35.247 | 1252.72 | 35.473 | |
| 336.54 | | | 102.58 | 1249.69 | 35.387 | 1257.69 | 35.613 | |
| 336.60 | 336.60 | 102.59 | 102.59 | 1255.40 | 35.528 | 1263.40 | 35.754 | |
| 336.61 | | | 102.60 | 1258.38 | 35.633 | 1266.38 | 35.859 | |
| 336.64 | | | 102.61 | 1262.10 | 35.739 | 1270.10 | 35.965 | |
| 336.68 | | 102.62 | 102.62 | 1265.83 | 35.844 | 1273.83 | 36.070 | |
| 336.70 | 336.70 | 102.63 | 102.63 | 1270.30 | 35.949 | 1278.30 | 36.175 | |
| 336.74 | | | 102.64 | 1274.49 | 36.090 | 1282.49 | 36.316 | |
| 336.77 | | | 102.65 | 1279.46 | 36.230 | 1287.46 | 36.456 | |
| 336.80 | 336.80 | 102.66 | 102.66 | 1285.20 | 36.371 | 1293.20 | 36.597 | |
| 336.84 | | | 102.67 | 1289.40 | 36.512 | 1297.40 | 36.738 | |
| 336.87 | | | 102.68 | 1294.36 | 36.652 | 1302.36 | 36.878 | |
| 336.90 | 336.90 | 102.69 | 102.69 | 1300.10 | 36.793 | 1308.10 | 37.019 | |
| 336.94 | | | 102.70 | 1304.29 | 36.933 | 1312.29 | 37.159 | |
| 336.97 | | | 102.71 | 1309.24 | 37.074 | 1317.24 | 37.300 | |
| 337.00 | 337.00 | 102.72 | 102.72 | 1315.00 | 37.214 | 1323.00 | 37.440 | |
| 337.04 | | | 102.73 | 1319.20 | 37.356 | 1327.20 | 37.582 | |
| 337.07 | | | 102.74 | 1324.21 | 37.497 | 1332.21 | 37.723 | |

| R.L. in Ft | R.L. as per old Area capacity table | | R.L. in Mt | Live | | Total (Live+Dead) | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | Ft | Mt | | Capacity in Mcft | Capacity in M.Cum | Capacity in Mcft | Capacity in M.Cum | |
| 337.10 | 337.10 | 102.75 | 102.75 | 1330.00 | 37.639 | 1338.00 | 37.865 | |
| 337.14 | | | 102.76 | 1334.20 | 37.780 | 1342.20 | 38.006 | |
| 337.17 | | | 102.77 | 1339.19 | 37.922 | 1347.19 | 38.148 | |
| 337.20 | 337.20 | 102.78 | 102.78 | 1345.00 | 38.063 | 1353.00 | 38.289 | |
| 337.23 | | | 102.79 | 1349.19 | 38.205 | 1357.19 | 38.431 | |
| 337.27 | | | 102.80 | 1354.19 | 38.346 | 1362.19 | 38.572 | |
| 337.30 | 337.30 | 102.81 | 102.81 | 1360.00 | 38.488 | 1368.00 | 38.714 | |
| 337.33 | | | 102.82 | 1364.18 | 38.629 | 1372.18 | 38.855 | |
| 337.36 | | | 102.83 | 1369.17 | 38.771 | 1377.17 | 38.997 | |
| 337.40 | 337.40 | 102.84 | 102.84 | 1375.00 | 38.912 | 1383.00 | 39.138 | |
| 337.43 | | | 102.85 | 1379.17 | 39.054 | 1387.17 | 39.280 | |
| 337.46 | | | 102.86 | 1384.17 | 39.195 | 1392.17 | 39.421 | |
| 337.50 | 337.50 | 102.87 | 102.87 | 1390.00 | 39.337 | 1398.00 | 39.563 | |
| 337.53 | | | 102.88 | 1394.71 | 39.494 | 1402.71 | 39.720 | |
| 337.56 | | | 102.89 | 1400.24 | 39.650 | 1408.24 | 39.876 | |
| 337.60 | 337.60 | 102.90 | 102.90 | 1406.00 | 39.807 | 1414.00 | 40.033 | |
| 337.63 | | | 102.91 | 1411.29 | 39.963 | 1419.29 | 40.189 | |
| 337.66 | | | 102.92 | 1416.81 | 40.120 | 1424.81 | 40.346 | |
| 337.70 | 337.70 | 102.93 | 102.93 | 1423.00 | 40.276 | 1431.00 | 40.502 | |
| 337.73 | | | 102.94 | 1427.87 | 40.433 | 1435.87 | 40.659 | |
| 337.76 | | | 102.95 | 1433.40 | 40.589 | 1441.40 | 40.815 | |
| 337.80 | 337.80 | 102.96 | 102.96 | 1439.00 | 40.746 | 1447.00 | 40.972 | |
| 337.82 | | | 102.97 | 1444.46 | 40.903 | 1452.46 | 41.129 | |
| 337.86 | | | 102.98 | 1450.00 | 41.059 | 1458.00 | 41.285 | |
| 337.90 | 337.90 | 102.99 | 102.99 | 1456.00 | 41.216 | 1464.00 | 41.442 | |
| 337.92 | | | 103.00 | 1461.06 | 41.373 | 1469.06 | 41.599 | |
| 337.96 | | | 103.01 | 1466.59 | 41.529 | 1474.59 | 41.755 | |
| 338.00 | 338.00 | 103.02 | 103.02 | 1473.00 | 41.686 | 1481.00 | 41.912 | |
| 338.02 | | | 103.03 | 1479.03 | 41.881 | 1487.03 | 42.107 | |
| 338.05 | | | 103.04 | 1485.92 | 42.077 | 1493.92 | 42.303 | |
| 338.10 | 338.10 | 103.05 | 103.05 | 1493.70 | 42.272 | 1501.70 | 42.498 | |
| 338.12 | | | 103.06 | 1499.71 | 42.467 | 1507.71 | 42.693 | |
| 338.15 | | | 103.07 | 1506.59 | 42.662 | 1514.59 | 42.888 | |
| 338.20 | 338.20 | 103.08 | 103.08 | 1513.18 | 42.857 | 1521.18 | 43.083 | |
| 338.22 | | | 103.09 | 1520.38 | 43.052 | 1528.38 | 43.278 | |
| 338.25 | | | 103.10 | 1527.28 | 43.248 | 1535.28 | 43.474 | |
| 338.30 | 338.30 | 103.11 | 103.11 | 1535.10 | 43.443 | 1543.10 | 43.669 | |
| 338.32 | | | 103.12 | 1541.07 | 43.638 | 1549.07 | 43.864 | |
| 338.35 | | | 103.13 | 1547.97 | 43.834 | 1555.97 | 44.060 | |
| 338.40 | 338.40 | 103.14 | 103.14 | 1555.80 | 44.029 | 1563.80 | 44.255 | |
| 338.41 | | | 103.15 | 1561.77 | 44.224 | 1569.77 | 44.450 | |
| 338.45 | | | 103.16 | 1568.67 | 44.420 | 1576.67 | 44.646 | |
| 338.50 | 338.50 | 103.17 | 103.17 | 1576.50 | 44.615 | 1584.50 | 44.841 | |
| 338.51 | | | 103.18 | 1582.46 | 44.810 | 1590.46 | 45.036 | |
| 338.55 | | | 103.19 | 1589.36 | 45.006 | 1597.36 | 45.232 | |
| 338.60 | 338.60 | 103.20 | 103.20 | 1597.20 | 45.201 | 1605.20 | 45.427 | |
| 338.61 | | | 103.21 | 1603.14 | 45.396 | 1611.14 | 45.622 | |
| 338.64 | | | 103.22 | 1610.03 | 45.591 | 1618.03 | 45.817 | |
| 338.70 | 338.70 | 103.23 | 103.23 | 1617.90 | 45.786 | 1625.90 | 46.012 | |
| 338.71 | | | 103.24 | 1623.82 | 45.981 | 1631.82 | 46.207 | |
| 338.74 | | | 103.25 | 1630.71 | 46.177 | 1638.71 | 46.403 | |
| 338.80 | 338.80 | 103.26 | 103.26 | 1638.60 | 46.372 | 1646.60 | 46.598 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 338.81 | | | 103.27 | 1642.79 | 46.519 | 1650.79 | 46.745 | |
| 338.84 | | | 103.28 | 1647.97 | 46.665 | 1655.97 | 46.891 | |
| 338.87 | | 103.29 | 103.29 | 1653.17 | 46.812 | 1661.17 | 47.038 | |
| 338.90 | 338.90 | 103.30 | 103.30 | 1659.30 | 46.958 | 1667.30 | 47.184 | |
| 338.94 | | | 103.31 | 1665.20 | 47.153 | 1673.20 | 47.379 | |
| 338.97 | | | 103.32 | 1672.10 | 47.349 | 1680.10 | 47.575 | |
| 339.00 | 339.00 | 103.33 | 103.33 | 1680.00 | 47.544 | 1688.00 | 47.770 | |
| 339.04 | | | 103.34 | 1685.99 | 47.742 | 1693.99 | 47.968 | |
| 339.07 | | | 103.35 | 1692.99 | 47.940 | 1700.99 | 48.166 | |
| 339.10 | 339.10 | 103.36 | 103.36 | 1701.00 | 48.138 | 1709.00 | 48.364 | |
| 339.14 | | | 103.37 | 1706.98 | 48.336 | 1714.98 | 48.562 | |
| 339.17 | | | 103.38 | 1713.99 | 48.535 | 1721.99 | 48.761 | |
| 339.20 | 339.20 | 103.39 | 103.39 | 1722.00 | 48.733 | 1730.00 | 48.959 | |
| 339.23 | | | 103.40 | 1727.98 | 48.931 | 1735.98 | 49.157 | |
| 339.27 | | | 103.41 | 1734.97 | 49.129 | 1742.97 | 49.355 | |
| 339.30 | 339.30 | 103.42 | 103.42 | 1743.00 | 49.327 | 1751.00 | 49.553 | |
| 339.33 | | | 103.43 | 1748.96 | 49.525 | 1756.96 | 49.751 | |
| 339.37 | | | 103.44 | 1755.95 | 49.723 | 1763.95 | 49.949 | |
| 339.40 | 339.40 | 103.45 | 103.45 | 1764.00 | 49.921 | 1772.00 | 50.147 | |
| 339.43 | | | 103.46 | 1769.94 | 50.119 | 1777.94 | 50.345 | |
| 339.46 | | | 103.47 | 1776.93 | 50.317 | 1784.93 | 50.543 | |
| 339.50 | 339.50 | 103.48 | 103.48 | 1785.00 | 50.515 | 1793.00 | 50.741 | |
| 339.53 | | | 103.49 | 1792.05 | 50.745 | 1800.05 | 50.971 | |
| 339.56 | | | 103.50 | 1800.19 | 50.976 | 1808.19 | 51.202 | |
| 339.60 | 339.60 | 103.51 | 103.51 | 1809.40 | 51.206 | 1817.40 | 51.432 | |
| 339.63 | | | 103.52 | 1816.45 | 51.436 | 1824.45 | 51.662 | |
| 339.66 | | | 103.53 | 1824.57 | 51.666 | 1832.57 | 51.892 | |
| 339.70 | 339.70 | 103.54 | 103.54 | 1833.80 | 51.896 | 1841.80 | 52.122 | |
| 339.73 | | | 103.55 | 1840.82 | 52.126 | 1848.82 | 52.352 | |
| 339.76 | | | 103.56 | 1848.96 | 52.357 | 1856.96 | 52.583 | |
| 339.80 | 339.80 | 103.57 | 103.57 | 1858.20 | 52.587 | 1866.20 | 52.813 | |
| 339.83 | | | 103.58 | 1865.21 | 52.817 | 1873.21 | 53.043 | |
| 339.86 | | | 103.59 | 1873.34 | 53.047 | 1881.34 | 53.273 | |
| 339.90 | 339.90 | 103.60 | 103.60 | 1882.60 | 53.277 | 1890.60 | 53.503 | |
| 339.92 | | | 103.61 | 1889.59 | 53.507 | 1897.59 | 53.733 | |
| 339.96 | | | 103.62 | 1897.73 | 53.738 | 1905.73 | 53.964 | |
| 340.00 | 340.00 | 103.63 | 103.63 | 1907.00 | 53.968 | 1915.00 | 54.194 | |
| 340.02 | | | 103.64 | 1914.38 | 54.209 | 1922.38 | 54.435 | |
| 340.05 | | | 103.65 | 1922.91 | 54.451 | 1930.91 | 54.677 | |
| 340.10 | 340.10 | 103.66 | 103.66 | 1932.50 | 54.692 | 1940.50 | 54.918 | |
| 340.12 | | | 103.67 | 1939.89 | 54.932 | 1947.89 | 55.158 | |
| 340.15 | | | 103.68 | 1948.36 | 55.171 | 1956.36 | 55.397 | |
| 340.20 | 340.20 | 103.69 | 103.69 | 1958.00 | 55.411 | 1966.00 | 55.637 | |
| 340.22 | | | 103.70 | 1965.34 | 55.652 | 1973.34 | 55.878 | |
| 340.25 | | | 103.71 | 1973.87 | 55.894 | 1981.87 | 56.120 | |
| 340.30 | 340.30 | 103.72 | 103.72 | 1985.50 | 56.135 | 1993.50 | 56.361 | |
| 340.32 | | | 103.73 | 1990.86 | 56.375 | 1998.86 | 56.601 | |
| 340.35 | | | 103.74 | 1999.34 | 56.615 | 2007.34 | 56.841 | |
| 340.40 | 340.40 | 103.75 | 103.75 | 2009.00 | 56.855 | 2017.00 | 57.081 | |
| 340.42 | | | 103.76 | 2016.30 | 57.095 | 2024.30 | 57.321 | |
| 340.45 | | | 103.77 | 2024.79 | 57.336 | 2032.79 | 57.562 | |
| 340.50 | 340.50 | 103.78 | 103.78 | 2034.50 | 57.576 | 2042.50 | 57.802 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 340.51 | | | 103.79 | 2041.78 | 57.817 | 2049.78 | 58.043 | |
| 340.55 | | | 103.80 | 2050.28 | 58.057 | 2058.28 | 58.283 | |
| 340.60 | 340.60 | 103.81 | 103.81 | 2060.00 | 58.298 | 2068.00 | 58.524 | |
| 340.61 | | | 103.82 | 2067.27 | 58.539 | 2075.27 | 58.765 | |
| 340.65 | | | 103.83 | 2075.77 | 58.779 | 2083.77 | 59.005 | |
| 340.70 | 340.70 | 103.84 | 103.84 | 2085.50 | 59.020 | 2093.50 | 59.246 | |
| 340.71 | | | 103.85 | 2092.76 | 59.260 | 2100.76 | 59.486 | |
| 340.74 | | | 103.86 | 2101.25 | 59.501 | 2109.25 | 59.727 | |
| 340.80 | 340.80 | 103.87 | 103.87 | 2111.00 | 59.741 | 2119.00 | 59.967 | |
| 340.81 | | | 103.88 | 2118.23 | 59.982 | 2126.23 | 60.208 | |
| 340.84 | | | 103.89 | 2126.73 | 60.222 | 2134.73 | 60.448 | |
| 340.90 | 340.90 | 103.90 | 103.90 | 2136.50 | 60.463 | 2144.50 | 60.689 | |
| 340.91 | | | 103.91 | 2141.61 | 60.644 | 2149.61 | 60.870 | |
| 340.94 | | | 103.92 | 2147.99 | 60.824 | 2155.99 | 61.050 | |
| 340.97 | | 103.93 | 103.93 | 2154.39 | 61.005 | 2162.39 | 61.231 | |
| 341.00 | 341.00 | 103.94 | 103.94 | 2162.00 | 61.185 | 2170.00 | 61.411 | |
| 341.04 | | | 103.95 | 2168.32 | 61.400 | 2176.32 | 61.626 | |
| 341.07 | | | 103.96 | 2175.91 | 61.615 | 2183.91 | 61.841 | |
| 341.10 | 341.10 | 103.97 | 103.97 | 2184.80 | 61.830 | 2192.80 | 62.056 | |
| 341.14 | | | 103.98 | 2191.10 | 62.045 | 2199.10 | 62.271 | |
| 341.17 | | | 103.99 | 2198.69 | 62.260 | 2206.69 | 62.486 | |
| 341.20 | 341.20 | 104.00 | 104.00 | 2207.60 | 62.475 | 2215.60 | 62.701 | |
| 341.24 | | | 104.01 | 2213.88 | 62.690 | 2221.88 | 62.916 | |
| 341.27 | | | 104.02 | 2221.47 | 62.905 | 2229.47 | 63.131 | |
| 341.30 | 341.30 | 104.03 | 104.03 | 2230.40 | 63.120 | 2238.40 | 63.346 | |
| 341.33 | | | 104.04 | 2236.65 | 63.335 | 2244.65 | 63.561 | |
| 341.37 | | | 104.05 | 2244.25 | 63.550 | 2252.25 | 63.776 | |
| 341.40 | 341.40 | 104.06 | 104.06 | 2253.20 | 63.765 | 2261.20 | 63.991 | |
| 341.43 | | | 104.07 | 2259.44 | 63.980 | 2267.44 | 64.206 | |
| 341.47 | | | 104.08 | 2267.05 | 64.196 | 2275.05 | 64.422 | |
| 341.50 | 341.50 | 104.09 | 104.09 | 2276.00 | 64.411 | 2284.00 | 64.637 | |
| 341.53 | | | 104.10 | 2282.25 | 64.626 | 2290.25 | 64.852 | |
| 341.56 | | | 104.11 | 2289.84 | 64.841 | 2297.84 | 65.067 | |
| 341.60 | 341.60 | 104.12 | 104.12 | 2298.80 | 65.056 | 2306.80 | 65.282 | |
| 341.63 | | | 104.13 | 2305.02 | 65.271 | 2313.02 | 65.497 | |
| 341.66 | | | 104.14 | 2312.62 | 65.486 | 2320.62 | 65.712 | |
| 341.70 | 341.70 | 104.15 | 104.15 | 2321.60 | 65.701 | 2329.60 | 65.927 | |
| 341.73 | | | 104.16 | 2327.80 | 65.916 | 2335.80 | 66.142 | |
| 341.76 | | | 104.17 | 2335.39 | 66.131 | 2343.39 | 66.357 | |
| 341.80 | 341.80 | 104.18 | 104.18 | 2344.40 | 66.346 | 2352.40 | 66.572 | |
| 341.83 | | | 104.19 | 2350.59 | 66.561 | 2358.59 | 66.787 | |
| 341.86 | | | 104.20 | 2358.20 | 66.777 | 2366.20 | 67.003 | |
| 341.90 | 341.90 | 104.21 | 104.21 | 2367.20 | 66.992 | 2375.20 | 67.218 | |
| 341.92 | | | 104.22 | 2373.39 | 67.207 | 2381.39 | 67.433 | |
| 341.96 | | | 104.23 | 2380.99 | 67.422 | 2388.99 | 67.648 | |
| 342.00 | 342.00 | 104.24 | 104.24 | 2390.00 | 67.637 | 2398.00 | 67.863 | |
| 342.02 | | | 104.25 | 2396.41 | 67.859 | 2404.41 | 68.085 | |
| 342.06 | | | 104.26 | 2404.23 | 68.080 | 2412.23 | 68.306 | |
| 342.10 | 342.10 | 104.27 | 104.27 | 2413.50 | 68.302 | 2421.50 | 68.528 | |
| 342.12 | | | 104.28 | 2419.89 | 68.524 | 2427.89 | 68.750 | |
| 342.15 | | | 104.29 | 2427.72 | 68.745 | 2435.72 | 68.971 | |
| 342.20 | 342.20 | 104.30 | 104.30 | 2437.00 | 68.967 | 2445.00 | 69.193 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 342.22 | | | 104.31 | 2443.21 | 69.184 | 2451.21 | 69.410 | |
| 342.25 | | | 104.32 | 2450.87 | 69.401 | 2458.87 | 69.627 | |
| 342.30 | 342.30 | 104.33 | 104.33 | 2460.50 | 69.618 | 2468.50 | 69.844 | |
| 342.32 | | | 104.34 | 2466.53 | 69.844 | 2474.53 | 70.070 | |
| 342.35 | | | 104.35 | 2474.52 | 70.071 | 2482.52 | 70.297 | |
| 342.40 | 342.40 | 104.36 | 104.36 | 2484.00 | 70.297 | 2492.00 | 70.523 | |
| 342.42 | | | 104.37 | 2490.34 | 70.519 | 2498.34 | 70.745 | |
| 342.45 | | | 104.38 | 2498.17 | 70.740 | 2506.17 | 70.966 | |
| 342.50 | 342.50 | 104.39 | 104.39 | 2507.50 | 70.962 | 2515.50 | 71.188 | |
| 342.52 | | | 104.40 | 2513.83 | 71.184 | 2521.83 | 71.410 | |
| 342.55 | | | 104.41 | 2521.66 | 71.405 | 2529.66 | 71.631 | |
| 342.60 | 342.60 | 104.42 | 104.42 | 2531.00 | 71.627 | 2539.00 | 71.853 | |
| 342.61 | | | 104.43 | 2537.15 | 71.844 | 2545.15 | 72.070 | |
| 342.65 | | | 104.44 | 2544.81 | 72.061 | 2552.81 | 72.287 | |
| 342.70 | 342.70 | 104.45 | 104.45 | 2554.50 | 72.278 | 2562.50 | 72.504 | |
| 342.71 | | | 104.46 | 2560.47 | 72.504 | 2568.47 | 72.730 | |
| 342.75 | | | 104.47 | 2568.46 | 72.731 | 2576.46 | 72.957 | |
| 342.80 | 342.80 | 104.48 | 104.48 | 2578.00 | 72.957 | 2586.00 | 73.183 | |
| 342.81 | | | 104.49 | 2584.28 | 73.179 | 2592.28 | 73.405 | |
| 342.84 | | | 104.50 | 2592.11 | 73.400 | 2600.11 | 73.626 | |
| 342.90 | 342.90 | 104.51 | 104.51 | 2601.50 | 73.622 | 2609.50 | 73.848 | |
| 342.91 | | | 104.52 | 2605.81 | 73.788 | 2613.81 | 74.014 | |
| 342.94 | | | 104.53 | 2611.68 | 73.955 | 2619.68 | 74.181 | |
| 342.97 | | 104.54 | 104.54 | 2617.58 | 74.121 | 2625.58 | 74.347 | |
| 343.00 | 343.00 | 104.55 | 104.55 | 2625.00 | 74.287 | 2633.00 | 74.513 | |
| 343.04 | | | 104.56 | 2632.52 | 74.545 | 2640.52 | 74.771 | |
| 343.07 | | | 104.57 | 2641.62 | 74.802 | 2649.62 | 75.028 | |
| 343.10 | 343.10 | 104.58 | 104.58 | 2652.30 | 75.060 | 2660.30 | 75.286 | |
| 343.14 | | | 104.59 | 2659.82 | 75.318 | 2667.82 | 75.544 | |
| 343.17 | | | 104.60 | 2668.92 | 75.575 | 2676.92 | 75.801 | |
| 343.20 | 343.20 | 104.61 | 104.61 | 2679.60 | 75.833 | 2687.60 | 76.059 | |
| 343.24 | | | 104.62 | 2687.10 | 76.090 | 2695.10 | 76.316 | |
| 343.27 | | | 104.63 | 2696.19 | 76.348 | 2704.19 | 76.574 | |
| 343.30 | 343.30 | 104.64 | 104.64 | 2706.90 | 76.605 | 2714.90 | 76.831 | |
| 343.34 | | | 104.65 | 2714.38 | 76.863 | 2722.38 | 77.089 | |
| 343.37 | | | 104.66 | 2723.48 | 77.120 | 2731.48 | 77.346 | |
| 343.40 | 343.40 | 104.67 | 104.67 | 2734.20 | 77.378 | 2742.20 | 77.604 | |
| 343.43 | | | 104.68 | 2741.67 | 77.635 | 2749.67 | 77.861 | |
| 343.47 | | | 104.69 | 2750.75 | 77.893 | 2758.75 | 78.119 | |
| 343.50 | 343.50 | 104.70 | 104.70 | 2761.50 | 78.150 | 2769.50 | 78.376 | |
| 343.53 | | | 104.71 | 2768.94 | 78.408 | 2776.94 | 78.634 | |
| 343.57 | | | 104.72 | 2778.04 | 78.665 | 2786.04 | 78.891 | |
| 343.60 | 343.60 | 104.73 | 104.73 | 2788.80 | 78.923 | 2796.80 | 79.149 | |
| 343.63 | | | 104.74 | 2796.23 | 79.180 | 2804.23 | 79.406 | |
| 343.66 | | | 104.75 | 2805.31 | 79.438 | 2813.31 | 79.664 | |
| 343.70 | 343.70 | 104.76 | 104.76 | 2816.10 | 79.695 | 2824.10 | 79.921 | |
| 343.73 | | | 104.77 | 2823.50 | 79.953 | 2831.50 | 80.179 | |
| 343.76 | | | 104.78 | 2832.60 | 80.210 | 2840.60 | 80.436 | |
| 343.80 | 343.80 | 104.79 | 104.79 | 2843.40 | 80.468 | 2851.40 | 80.694 | |
| 343.83 | | | 104.80 | 2850.80 | 80.726 | 2858.80 | 80.952 | |
| 343.86 | | | 104.81 | 2859.90 | 80.983 | 2867.90 | 81.209 | |
| 343.90 | 343.90 | 104.82 | 104.82 | 2870.70 | 81.241 | 2878.70 | 81.467 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 343.93 | | | 104.83 | 2878.11 | 81.499 | 2886.11 | 81.725 | |
| 343.96 | | | 104.84 | 2887.22 | 81.757 | 2895.22 | 81.983 | |
| 344.00 | 344.00 | 104.85 | 104.85 | 1898.00 | 82.015 | 1906.00 | 82.241 | |
| 344.02 | | | 104.86 | 2905.63 | 82.278 | 2913.63 | 82.504 | |
| 344.06 | | | 104.87 | 2914.93 | 82.542 | 2922.93 | 82.768 | |
| 344.10 | 344.10 | 104.88 | 104.88 | 2926.00 | 82.805 | 2934.00 | 83.031 | |
| 344.12 | | | 104.89 | 2933.57 | 83.069 | 2941.57 | 83.295 | |
| 344.16 | | | 104.90 | 2942.90 | 83.334 | 2950.90 | 83.560 | |
| 344.20 | 344.20 | 104.91 | 104.91 | 2954.00 | 83.598 | 2962.00 | 83.824 | |
| 344.22 | | | 104.92 | 2961.56 | 83.862 | 2969.56 | 84.088 | |
| 344.25 | | | 104.93 | 2970.88 | 84.126 | 2978.88 | 84.352 | |
| 344.30 | 344.30 | 104.94 | 104.94 | 2982.00 | 84.390 | 2990.00 | 84.616 | |
| 344.32 | | | 104.95 | 2989.54 | 84.654 | 2997.54 | 84.880 | |
| 344.35 | | | 104.96 | 2998.87 | 84.919 | 3006.87 | 85.145 | |
| 344.40 | 344.40 | 104.97 | 104.97 | 3010.00 | 85.183 | 3018.00 | 85.409 | |
| 344.42 | | | 104.98 | 3017.53 | 85.447 | 3025.53 | 85.673 | |
| 344.45 | | | 104.99 | 3026.86 | 85.711 | 3034.86 | 85.937 | |
| 344.50 | 344.50 | 105.00 | 105.00 | 3038.00 | 85.975 | 3046.00 | 86.201 | |
| 344.52 | | | 105.01 | 3046.64 | 86.271 | 3054.64 | 86.497 | |
| 344.55 | | | 105.02 | 3057.11 | 86.568 | 3065.11 | 86.794 | |
| 344.60 | 344.60 | 105.03 | 105.03 | 3069.40 | 86.864 | 3077.40 | 87.090 | |
| 344.62 | | | 105.04 | 3078.03 | 87.160 | 3086.03 | 87.386 | |
| 344.65 | | | 105.05 | 3088.48 | 87.456 | 3096.48 | 87.682 | |
| 344.70 | 344.70 | 105.06 | 105.06 | 3100.80 | 87.752 | 3108.80 | 87.978 | |
| 344.71 | | | 105.07 | 3109.40 | 88.048 | 3117.40 | 88.274 | |
| 344.75 | | | 105.08 | 3119.86 | 88.345 | 3127.86 | 88.571 | |
| 344.80 | 344.80 | 105.09 | 105.09 | 3132.20 | 88.641 | 3140.20 | 88.867 | |
| 344.81 | | | 105.10 | 3140.78 | 88.937 | 3148.78 | 89.163 | |
| 344.84 | | | 105.11 | 3151.23 | 89.233 | 3159.23 | 89.459 | |
| 344.90 | 344.90 | 105.12 | 105.12 | 3163.60 | 89.529 | 3171.60 | 89.755 | |
| 344.91 | | | 105.13 | 3169.54 | 89.751 | 3177.54 | 89.977 | |
| 344.94 | | | 105.14 | 3177.39 | 89.974 | 3185.39 | 90.200 | |
| 344.98 | | 105.15 | 105.15 | 3185.27 | 90.196 | 3193.27 | 90.422 | |
| 345.00 | 345.00 | 105.16 | 105.16 | 3195.00 | 90.418 | 3203.00 | 90.644 | |
| 345.04 | | | 105.17 | 3203.97 | 90.726 | 3211.97 | 90.952 | |
| 345.07 | | | 105.18 | 3214.86 | 91.035 | 3222.86 | 91.261 | |
| 345.10 | 345.10 | 105.19 | 105.19 | 3227.70 | 91.343 | 3235.70 | 91.569 | |
| 345.14 | | | 105.20 | 3236.65 | 91.652 | 3244.65 | 91.878 | |
| 345.17 | | | 105.21 | 3247.55 | 91.960 | 3255.55 | 92.186 | |
| 345.20 | 345.20 | 105.22 | 105.22 | 3260.40 | 92.269 | 3268.40 | 92.495 | |
| 345.24 | | | 105.23 | 3269.34 | 92.577 | 3277.34 | 92.803 | |
| 345.27 | | | 105.24 | 3280.23 | 92.886 | 3288.23 | 93.112 | |
| 345.30 | 345.30 | 105.25 | 105.25 | 3293.10 | 93.194 | 3301.10 | 93.420 | |
| 345.34 | | | 105.26 | 3302.02 | 93.503 | 3310.02 | 93.729 | |
| 345.37 | | | 105.27 | 3312.92 | 93.811 | 3320.92 | 94.037 | |
| 345.40 | 345.40 | 105.28 | 105.28 | 3325.80 | 94.120 | 3333.80 | 94.346 | |
| 345.44 | | | 105.29 | 3334.71 | 94.428 | 3342.71 | 94.654 | |
| 345.47 | | | 105.30 | 3345.59 | 94.737 | 3353.59 | 94.963 | |
| 345.50 | 345.50 | 105.31 | 105.31 | 3358.50 | 95.045 | 3366.50 | 95.271 | |
| 345.53 | | | 105.32 | 3367.37 | 95.353 | 3375.37 | 95.579 | |
| 345.57 | | | 105.33 | 3378.26 | 95.662 | 3386.26 | 95.888 | |
| 345.60 | 345.60 | 105.34 | 105.34 | 3391.20 | 95.970 | 3399.20 | 96.196 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 345.63 | | | 105.35 | 3400.05 | 96.279 | 3408.05 | 96.505 | |
| 345.67 | | | 105.36 | 3410.95 | 96.587 | 3418.95 | 96.813 | |
| 345.70 | 345.70 | 105.37 | 105.37 | 3423.90 | 96.896 | 3431.90 | 97.122 | |
| 345.73 | | | 105.38 | 3432.74 | 97.204 | 3440.74 | 97.430 | |
| 345.76 | | | 105.39 | 3443.63 | 97.513 | 3451.63 | 97.739 | |
| 345.80 | 345.80 | 105.40 | 105.40 | 3456.60 | 97.821 | 3464.60 | 98.047 | |
| 345.83 | | | 105.41 | 3465.42 | 98.130 | 3473.42 | 98.356 | |
| 345.86 | | | 105.42 | 3476.32 | 98.438 | 3484.32 | 98.664 | |
| 345.90 | 345.90 | 105.43 | 105.43 | 3489.30 | 98.747 | 3497.30 | 98.973 | |
| 345.93 | | | 105.44 | 3498.11 | 99.055 | 3506.11 | 99.281 | |
| 345.96 | | | 105.45 | 3508.99 | 99.364 | 3516.99 | 99.590 | |
| 346.00 | 346.00 | 105.46 | 105.46 | 3522.00 | 99.672 | 3530.00 | 99.898 | |
| 346.03 | | | 105.47 | 3530.68 | 99.978 | 3538.68 | 100.204 | |
| 346.06 | | | 105.48 | 3541.47 | 100.283 | 3549.47 | 100.509 | |
| 346.10 | 346.10 | 105.49 | 105.49 | 3554.40 | 100.589 | 3562.40 | 100.815 | |
| 346.12 | | | 105.50 | 3563.06 | 100.895 | 3571.06 | 101.121 | |
| 346.16 | | | 105.51 | 3573.86 | 101.200 | 3581.86 | 101.426 | |
| 346.20 | 346.20 | 105.52 | 105.52 | 3586.80 | 101.506 | 3594.80 | 101.732 | |
| 346.22 | | | 105.53 | 3595.45 | 101.812 | 3603.45 | 102.038 | |
| 346.26 | | | 105.54 | 3606.24 | 102.117 | 3614.24 | 102.343 | |
| 346.30 | 346.30 | 105.55 | 105.55 | 3619.20 | 102.423 | 3627.20 | 102.649 | |
| 346.32 | | | 105.56 | 3627.83 | 102.729 | 3635.83 | 102.955 | |
| 346.35 | | | 105.57 | 3638.62 | 103.034 | 3646.62 | 103.260 | |
| 346.40 | 346.40 | 105.58 | 105.58 | 3651.60 | 103.340 | 3659.60 | 103.566 | |
| 346.42 | | | 105.59 | 3660.21 | 103.646 | 3668.21 | 103.872 | |
| 346.45 | | | 105.60 | 3671.01 | 103.951 | 3679.01 | 104.177 | |
| 346.50 | 346.50 | 105.61 | 105.61 | 3684.00 | 104.257 | 3692.00 | 104.483 | |
| 346.52 | | | 105.62 | 3692.60 | 104.563 | 3700.60 | 104.789 | |
| 346.55 | | | 105.63 | 3703.39 | 104.868 | 3711.39 | 105.094 | |
| 346.60 | 346.60 | 105.64 | 105.64 | 3716.40 | 105.174 | 3724.40 | 105.400 | |
| 346.62 | | | 105.65 | 3724.98 | 105.480 | 3732.98 | 105.706 | |
| 346.65 | | | 105.66 | 3735.77 | 105.785 | 3743.77 | 106.011 | |
| 346.70 | 346.70 | 105.67 | 105.67 | 3748.80 | 106.091 | 3756.80 | 106.317 | |
| 346.71 | | | 105.68 | 3757.37 | 106.397 | 3765.37 | 106.623 | |
| 346.75 | | | 105.69 | 3768.18 | 106.703 | 3776.18 | 106.929 | |
| 346.80 | 346.80 | 105.70 | 105.70 | 3781.20 | 107.009 | 3789.20 | 107.235 | |
| 346.81 | | | 105.71 | 3789.76 | 107.314 | 3797.76 | 107.540 | |
| 346.85 | | | 105.72 | 3800.53 | 107.619 | 3808.53 | 107.845 | |
| 346.90 | 346.90 | 105.73 | 105.73 | 3813.60 | 107.924 | 3821.60 | 108.150 | |
| 346.91 | | | 105.74 | 3822.09 | 108.230 | 3830.09 | 108.456 | |
| 346.94 | | | 105.75 | 3832.89 | 108.535 | 3840.89 | 108.761 | |
| 347.00 | 347.00 | 105.76 | 105.76 | 3846.00 | 108.841 | 3854.00 | 109.067 | |
| 347.01 | | | 105.77 | 3854.64 | 109.151 | 3862.64 | 109.377 | |
| 347.04 | | | 105.78 | 3865.60 | 109.462 | 3873.60 | 109.688 | |
| 347.10 | 347.10 | 105.79 | 105.79 | 3878.90 | 109.772 | 3886.90 | 109.998 | |
| 347.11 | | | 105.80 | 3884.78 | 110.005 | 3892.78 | 110.231 | |
| 347.14 | | | 105.81 | 3892.99 | 110.237 | 3900.99 | 110.463 | |
| 347.17 | | 105.82 | 105.82 | 3901.25 | 110.470 | 3909.25 | 110.696 | |
| 347.20 | 347.20 | 105.83 | 105.83 | 3911.80 | 110.703 | 3919.80 | 110.929 | |
| 347.24 | | | 105.84 | 3920.41 | 111.014 | 3928.41 | 111.240 | |
| 347.27 | | | 105.85 | 3931.38 | 111.324 | 3939.38 | 111.550 | |
| 347.30 | 347.30 | 105.86 | 105.86 | 3944.70 | 111.635 | 3952.70 | 111.861 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 347.34 | | | 105.87 | 3953.31 | 111.945 | 3961.31 | 112.171 | |
| 347.37 | | | 105.88 | 3964.27 | 112.256 | 3972.27 | 112.482 | |
| 347.40 | 347.40 | 105.89 | 105.89 | 3977.60 | 112.566 | 3985.60 | 112.792 | |
| 347.44 | | | 105.90 | 3986.19 | 112.876 | 3994.19 | 113.102 | |
| 347.47 | | | 105.91 | 3997.15 | 113.187 | 4005.15 | 113.413 | |
| 347.50 | 347.50 | 105.92 | 105.92 | 4010.50 | 113.497 | 4018.50 | 113.723 | |
| 347.54 | | | 105.93 | 4019.07 | 113.807 | 4027.07 | 114.033 | |
| 347.57 | | | 105.94 | 4030.03 | 114.118 | 4038.03 | 114.344 | |
| 347.60 | 347.60 | 105.95 | 105.95 | 4043.40 | 114.428 | 4051.40 | 114.654 | |
| 347.63 | | | 105.96 | 4051.95 | 114.738 | 4059.95 | 114.964 | |
| 347.67 | | | 105.97 | 4062.91 | 115.049 | 4070.91 | 115.275 | |
| 347.70 | 347.70 | 105.98 | 105.98 | 4076.30 | 115.359 | 4084.30 | 115.585 | |
| 347.73 | | | 105.99 | 4084.82 | 115.669 | 4092.82 | 115.895 | |
| 347.76 | | | 106.00 | 4095.78 | 115.980 | 4103.78 | 116.206 | |
| 347.80 | 347.80 | 106.01 | 106.01 | 4109.20 | 116.290 | 4117.20 | 116.516 | |
| 347.83 | | | 106.02 | 4117.70 | 116.600 | 4125.70 | 116.826 | |
| 347.86 | | | 106.03 | 4128.66 | 116.911 | 4136.66 | 117.137 | |
| 347.90 | 347.90 | 106.04 | 106.04 | 4142.10 | 117.221 | 4150.10 | 117.447 | |
| 347.93 | | | 106.05 | 4150.58 | 117.531 | 4158.58 | 117.757 | |
| 347.96 | | | 106.06 | 4161.54 | 117.842 | 4169.54 | 118.068 | |
| 348.00 | 348.00 | 106.07 | 106.07 | 4175.00 | 118.152 | 4183.00 | 118.378 | Crest R.L. |
| 348.03 | | | 106.08 | 4173.22 | 118.172 | 4181.22 | 118.398 | |
| 348.06 | | | 106.09 | 4173.93 | 118.193 | 4181.93 | 118.419 | |
| 348.10 | 348.10 | 106.10 | 106.10 | 4212.50 | 118.213 | 4220.50 | 118.439 | |
| 348.13 | | | 106.11 | 4198.93 | 118.900 | 4206.93 | 119.126 | |
| 348.16 | | | 106.12 | 4223.20 | 119.588 | 4231.20 | 119.814 | |
| 348.20 | 348.20 | 106.13 | 106.13 | 4250.00 | 120.275 | 4258.00 | 120.501 | |
| 348.22 | | | 106.14 | 4259.96 | 120.629 | 4267.96 | 120.855 | |
| 348.26 | | | 106.15 | 4272.45 | 120.982 | 4280.45 | 121.208 | |
| 348.30 | 348.30 | 106.16 | 106.16 | 4287.50 | 121.336 | 4295.50 | 121.562 | |
| 348.32 | | | 106.17 | 4297.43 | 121.690 | 4305.43 | 121.916 | |
| 348.36 | | | 106.18 | 4309.92 | 122.043 | 4317.92 | 122.269 | |
| 348.40 | 348.40 | 106.19 | 106.19 | 4325.00 | 122.397 | 4333.00 | 122.623 | |
| 348.42 | | | 106.20 | 4334.90 | 122.751 | 4342.90 | 122.977 | |
| 348.45 | | | 106.21 | 4347.39 | 123.104 | 4355.39 | 123.330 | |
| 348.50 | 348.50 | 106.22 | 106.22 | 4362.50 | 123.458 | 4370.50 | 123.684 | |
| 348.52 | | | 106.23 | 4372.38 | 123.812 | 4380.38 | 124.038 | |
| 348.55 | | | 106.24 | 4384.88 | 124.166 | 4392.88 | 124.392 | |
| 348.60 | 348.60 | 106.25 | 106.25 | 4400.00 | 124.520 | 4408.00 | 124.746 | |
| 348.62 | | | 106.26 | 4409.87 | 124.874 | 4417.87 | 125.100 | |
| 348.65 | | | 106.27 | 4422.36 | 125.227 | 4430.36 | 125.453 | |
| 348.70 | 348.70 | 106.28 | 106.28 | 4437.50 | 125.581 | 4445.50 | 125.807 | |
| 348.72 | | | 106.29 | 4447.34 | 125.935 | 4455.34 | 126.161 | |
| 348.75 | | | 106.30 | 4459.83 | 126.288 | 4467.83 | 126.514 | |
| 348.80 | 348.80 | 106.31 | 106.31 | 4475.00 | 126.642 | 4483.00 | 126.868 | |
| 348.81 | | | 106.32 | 4484.81 | 126.996 | 4492.81 | 127.222 | |
| 348.85 | | | 106.33 | 4497.30 | 127.349 | 4505.30 | 127.575 | |
| 348.90 | 348.90 | 106.34 | 106.34 | 4512.50 | 127.703 | 4520.50 | 127.929 | |
| 348.91 | | | 106.35 | 4519.16 | 127.968 | 4527.16 | 128.194 | |
| 348.95 | | | 106.36 | 4528.53 | 128.234 | 4536.53 | 128.460 | |
| 348.98 | | 106.37 | 106.37 | 4537.94 | 128.499 | 4545.94 | 128.725 | |
| 349.00 | 349.00 | 106.38 | 106.38 | 4550.00 | 128.765 | 4558.00 | 128.991 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 349.04 | | | 106.39 | 4559.11 | 129.100 | 4567.11 | 129.326 | |
| 349.08 | | | 106.40 | 4570.93 | 129.434 | 4578.93 | 129.660 | |
| 349.10 | 349.10 | 106.41 | 106.41 | 4585.50 | 129.769 | 4593.50 | 129.995 | |
| 349.14 | | | 106.42 | 4594.58 | 130.104 | 4602.58 | 130.330 | |
| 349.18 | | | 106.43 | 4606.41 | 130.439 | 4614.41 | 130.665 | |
| 349.20 | 349.20 | 106.44 | 106.44 | 4621.00 | 130.774 | 4629.00 | 131.000 | |
| 349.24 | | | 106.45 | 4630.06 | 131.109 | 4638.06 | 131.335 | |
| 349.27 | | | 106.46 | 4641.88 | 131.443 | 4649.88 | 131.669 | |
| 349.30 | 349.30 | 106.47 | 106.47 | 4656.50 | 131.778 | 4664.50 | 132.004 | |
| 349.34 | | | 106.48 | 4665.53 | 132.113 | 4673.53 | 132.339 | |
| 349.37 | | | 106.49 | 4677.36 | 132.448 | 4685.36 | 132.674 | |
| 349.40 | 349.40 | 106.50 | 106.50 | 4692.00 | 132.783 | 4700.00 | 133.009 | |
| 349.44 | | | 106.51 | 4701.02 | 133.118 | 4709.02 | 133.344 | |
| 349.47 | | | 106.52 | 4712.85 | 133.453 | 4720.85 | 133.679 | |
| 349.50 | 349.50 | 106.53 | 106.53 | 4727.50 | 133.788 | 4735.50 | 134.014 | |
| 349.54 | | | 106.54 | 4736.50 | 134.123 | 4744.50 | 134.349 | |
| 349.57 | | | 106.55 | 4748.32 | 134.457 | 4756.32 | 134.683 | |
| 349.60 | 349.60 | 106.56 | 106.56 | 4763.00 | 134.792 | 4771.00 | 135.018 | |
| 349.63 | | | 106.57 | 4771.96 | 135.127 | 4779.96 | 135.353 | |
| 349.67 | | | 106.58 | 4783.80 | 135.462 | 4791.80 | 135.688 | |
| 349.70 | 349.70 | 106.59 | 106.59 | 4798.50 | 135.797 | 4806.50 | 136.023 | |
| 349.73 | | | 106.60 | 4807.46 | 136.132 | 4815.46 | 136.358 | |
| 349.77 | | | 106.61 | 4819.29 | 136.467 | 4827.29 | 136.693 | |
| 349.80 | 349.80 | 106.62 | 106.62 | 4834.00 | 136.802 | 4842.00 | 137.028 | |
| 349.83 | | | 106.63 | 4842.24 | 137.117 | 4850.24 | 137.343 | |
| 349.86 | | | 106.64 | 4853.37 | 137.432 | 4861.37 | 137.658 | |
| 349.90 | 349.90 | 106.65 | 106.65 | 4864.50 | 137.747 | 4872.50 | 137.973 | |
| 349.93 | | | 106.66 | 4873.68 | 138.007 | 4881.68 | 138.233 | |
| 349.96 | | | 106.67 | 4882.88 | 138.268 | 4890.88 | 138.494 | |
| 350.00 | 350.00 | 106.68 | 106.68 | 4895.00 | 138.528 | 4903.00 | 138.754 | |
| 350.03 | | | 106.69 | 4903.57 | 138.854 | 4911.57 | 139.080 | |
| 350.06 | | | 106.70 | 4915.07 | 139.179 | 4923.07 | 139.405 | |
| 350.10 | 350.10 | 106.71 | 106.71 | 4929.50 | 139.505 | 4937.50 | 139.731 | |
| 350.13 | | | 106.72 | 4938.06 | 139.830 | 4946.06 | 140.056 | |
| 350.16 | | | 106.73 | 4949.55 | 140.156 | 4957.55 | 140.382 | |
| 350.20 | 350.20 | 106.74 | 106.74 | 4964.00 | 140.481 | 4972.00 | 140.707 | |
| 350.23 | | | 106.75 | 4972.53 | 140.806 | 4980.53 | 141.032 | |
| 350.26 | | | 106.76 | 4984.02 | 141.132 | 4992.02 | 141.358 | |
| 350.30 | 350.30 | 106.77 | 106.77 | 4998.50 | 141.457 | 5006.50 | 141.683 | |
| 350.32 | | | 106.78 | 5007.00 | 141.782 | 5015.00 | 142.008 | |
| 350.36 | | | 106.79 | 5018.48 | 142.108 | 5026.48 | 142.334 | |
| 350.40 | 350.40 | 106.80 | 106.80 | 5033.00 | 142.433 | 5041.00 | 142.659 | |
| 350.42 | | | 106.81 | 5041.47 | 142.759 | 5049.47 | 142.985 | |
| 350.46 | | | 106.82 | 5052.98 | 143.084 | 5060.98 | 143.310 | |
| 350.50 | 350.50 | 106.83 | 106.83 | 5067.50 | 143.410 | 5075.50 | 143.636 | |
| 350.52 | | | 106.84 | 5075.98 | 143.736 | 5083.98 | 143.962 | |
| 350.55 | | | 106.85 | 5087.48 | 144.061 | 5095.48 | 144.287 | |
| 350.60 | 350.60 | 106.86 | 106.86 | 5102.00 | 144.387 | 5110.00 | 144.613 | |
| 350.62 | | | 106.87 | 5110.47 | 144.712 | 5118.47 | 144.938 | |
| 350.65 | | | 106.88 | 5121.96 | 145.038 | 5129.96 | 145.264 | |
| 350.70 | 350.70 | 106.89 | 106.89 | 5136.50 | 145.363 | 5144.50 | 145.589 | |
| 350.72 | | | 106.90 | 5144.93 | 145.688 | 5152.93 | 145.914 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 350.75 | | | 106.91 | 5156.42 | 146.014 | 5164.42 | 146.240 | |
| 350.80 | 350.80 | 106.92 | 106.92 | 5171.00 | 146.339 | 5179.00 | 146.565 | |
| 350.82 | | | 106.93 | 5179.41 | 146.665 | 5187.41 | 146.891 | |
| 350.85 | | | 106.94 | 5190.91 | 146.990 | 5198.91 | 147.216 | |
| 350.90 | 350.90 | 106.95 | 106.95 | 5205.50 | 147.316 | 5213.50 | 147.542 | |
| 350.91 | | | 106.96 | 5213.90 | 147.641 | 5221.90 | 147.867 | |
| 350.95 | | | 106.97 | 5225.39 | 147.967 | 5233.39 | 148.193 | |
| 351.00 | 351.00 | 106.98 | 106.98 | 5240.00 | 148.292 | 5248.00 | 148.518 | |
| 351.01 | | | 106.99 | 5251.63 | 148.710 | 5259.63 | 148.936 | |
| 351.05 | | | 107.00 | 5266.38 | 149.127 | 5274.38 | 149.353 | |
| 351.10 | 351.10 | 107.01 | 107.01 | 5284.80 | 149.545 | 5292.80 | 149.771 | |
| 351.11 | | | 107.02 | 5296.22 | 149.972 | 5304.22 | 150.198 | |
| 351.14 | | | 107.03 | 5311.31 | 150.400 | 5319.31 | 150.626 | |
| 351.20 | 351.20 | 107.04 | 107.04 | 5329.60 | 150.827 | 5337.60 | 151.053 | |
| 351.21 | | | 107.05 | 5341.33 | 151.250 | 5349.33 | 151.476 | |
| 351.24 | | | 107.06 | 5356.26 | 151.672 | 5364.26 | 151.898 | |
| 351.30 | 351.30 | 107.07 | 107.07 | 5374.40 | 152.095 | 5382.40 | 152.321 | |
| 351.31 | | | 107.08 | 5386.11 | 152.518 | 5394.11 | 152.744 | |
| 351.34 | | | 107.09 | 5401.04 | 152.940 | 5409.04 | 153.166 | |
| 351.40 | 351.40 | 107.10 | 107.10 | 5419.20 | 153.363 | 5427.20 | 153.589 | |
| 351.41 | | | 107.11 | 5430.89 | 153.786 | 5438.89 | 154.012 | |
| 351.44 | | | 107.12 | 5445.82 | 154.208 | 5453.82 | 154.434 | |
| 351.50 | 351.50 | 107.13 | 107.13 | 5464.00 | 154.631 | 5472.00 | 154.857 | |
| 351.50 | | | 107.14 | 5476.93 | 155.089 | 5484.93 | 155.315 | |
| 351.54 | | | 107.15 | 5493.11 | 155.548 | 5501.11 | 155.774 | |
| 351.60 | 351.60 | 107.16 | 107.16 | 5512.60 | 156.006 | 5520.60 | 156.232 | |
| 351.60 | | | 107.17 | 5525.50 | 156.465 | 5533.50 | 156.691 | |
| 351.64 | | | 107.18 | 5541.70 | 156.923 | 5549.70 | 157.149 | |
| 351.70 | 351.70 | 107.19 | 107.19 | 5561.20 | 157.382 | 5569.20 | 157.608 | |
| 351.70 | | | 107.20 | 5574.08 | 157.840 | 5582.08 | 158.066 | |
| 351.73 | | | 107.21 | 5590.26 | 158.299 | 5598.26 | 158.525 | |
| 351.80 | 351.80 | 107.22 | 107.22 | 5609.80 | 158.757 | 5617.80 | 158.983 | |
| 351.80 | | | 107.23 | 5622.65 | 159.216 | 5630.65 | 159.442 | |
| 351.83 | | | 107.24 | 5638.85 | 159.674 | 5646.85 | 159.900 | |
| 351.90 | 351.90 | 107.25 | 107.25 | 5658.40 | 160.133 | 5666.40 | 160.359 | |
| 351.90 | | | 107.26 | 5667.18 | 160.477 | 5675.18 | 160.703 | |
| 351.93 | | | 107.27 | 5679.32 | 160.820 | 5687.32 | 161.046 | |
| 351.96 | | 107.28 | 107.28 | 5691.51 | 161.164 | 5699.51 | 161.390 | |
| 352.00 | 352.00 | 107.29 | 107.29 | 5707.00 | 161.508 | 5715.00 | 161.734 | |
| 352.03 | | | 107.30 | 5719.02 | 161.945 | 5727.02 | 162.171 | |
| 352.06 | | | 107.31 | 5734.44 | 162.381 | 5742.44 | 162.607 | |
| 352.10 | 352.10 | 107.32 | 107.32 | 5753.30 | 162.818 | 5761.30 | 163.044 | |
| 352.13 | | | 107.33 | 5765.28 | 163.255 | 5773.28 | 163.481 | |
| 352.16 | | | 107.34 | 5780.70 | 163.691 | 5788.70 | 163.917 | |
| 352.20 | 352.20 | 107.35 | 107.35 | 5799.60 | 164.128 | 5807.60 | 164.354 | |
| 352.23 | | | 107.36 | 5811.55 | 164.565 | 5819.55 | 164.791 | |
| 352.26 | | | 107.37 | 5826.97 | 165.001 | 5834.97 | 165.227 | |
| 352.30 | 352.30 | 107.38 | 107.38 | 5845.90 | 165.438 | 5853.90 | 165.664 | |
| 352.33 | | | 107.39 | 5857.82 | 165.875 | 5865.82 | 166.101 | |
| 352.36 | | | 107.40 | 5873.25 | 166.312 | 5881.25 | 166.538 | |
| 352.40 | 352.40 | 107.41 | 107.41 | 5892.20 | 166.749 | 5900.20 | 166.975 | |
| 352.42 | | | 107.42 | 5904.11 | 167.186 | 5912.11 | 167.412 | |

| R.L. in Ft | R.L. as per old Area capacity table Ft | Mt | R.L. in Mt | Live Capacity in Mcft | Live Capacity in M.Cum | Total (Live+Dead) Capacity in Mcft | Total (Live+Dead) Capacity in M.Cum | Remarks |
|---|---|---|---|---|---|---|---|---|
| 352.46 | | | 107.43 | 5919.53 | 167.622 | 5927.53 | 167.848 | |
| 352.50 | 352.50 | 107.44 | 107.44 | 5938.50 | 168.059 | 5946.50 | 168.285 | |
| 352.52 | | | 107.45 | 5950.38 | 168.496 | 5958.38 | 168.722 | |
| 352.55 | | | 107.46 | 5965.81 | 168.933 | 5973.81 | 169.159 | |
| 352.60 | 352.60 | 107.47 | 107.47 | 5984.80 | 169.370 | 5992.80 | 169.596 | |
| 352.62 | | | 107.48 | 5996.67 | 169.807 | 6004.67 | 170.033 | |
| 352.65 | | | 107.49 | 6012.09 | 170.243 | 6020.09 | 170.469 | |
| 352.70 | 352.70 | 107.50 | 107.50 | 6031.10 | 170.680 | 6039.10 | 170.906 | |
| 352.72 | | | 107.51 | 6040.57 | 171.050 | 6048.57 | 171.276 | |
| 352.75 | | | 107.52 | 6053.64 | 171.420 | 6061.64 | 171.646 | |
| 352.80 | 352.80 | 107.53 | 107.53 | 6077.40 | 171.790 | 6085.40 | 172.016 | |
| 352.82 | | | 107.54 | 6084.48 | 172.293 | 6092.48 | 172.519 | |
| 352.85 | | | 107.55 | 6102.26 | 172.797 | 6110.26 | 173.023 | |
| 352.90 | 352.90 | 107.56 | 107.56 | 6123.70 | 173.300 | 6131.70 | 173.526 | |
| 352.92 | | | 107.57 | 6135.46 | 173.737 | 6143.46 | 173.963 | |
| 352.95 | | | 107.58 | 6150.90 | 174.174 | 6158.90 | 174.400 | |
| 353.00 | 353.00 | 107.59 | 107.59 | 6170.00 | 174.611 | 6178.00 | 174.837 | |
| 353.01 | | | 107.60 | 6181.99 | 175.054 | 6189.99 | 175.280 | |
| 353.05 | | | 107.61 | 6197.64 | 175.498 | 6205.64 | 175.724 | |
| 353.10 | 353.10 | 107.62 | 107.62 | 6217.00 | 175.941 | 6225.00 | 176.167 | |
| 353.11 | | | 107.63 | 6228.95 | 176.384 | 6236.95 | 176.610 | |
| 353.15 | | | 107.64 | 6244.61 | 176.828 | 6252.61 | 177.054 | |
| 353.20 | 353.20 | 107.65 | 107.65 | 6264.00 | 177.271 | 6272.00 | 177.497 | |
| 353.21 | | | 107.66 | 6275.92 | 177.714 | 6283.92 | 177.940 | |
| 353.24 | | | 107.67 | 6291.58 | 178.158 | 6299.58 | 178.384 | |
| 353.30 | 353.30 | 107.68 | 107.68 | 6311.00 | 178.601 | 6319.00 | 178.827 | |
| 353.31 | | | 107.69 | 6322.89 | 179.044 | 6330.89 | 179.270 | |
| 353.34 | | | 107.70 | 6338.55 | 179.488 | 6346.55 | 179.714 | |
| 353.40 | 353.40 | 107.71 | 107.71 | 6358.00 | 179.931 | 6366.00 | 180.157 | |
| 353.41 | | | 107.72 | 6369.86 | 180.374 | 6377.86 | 180.600 | |
| 353.44 | | | 107.73 | 6385.52 | 180.818 | 6393.52 | 181.044 | |
| 353.50 | 353.50 | 107.74 | 107.74 | 6405.00 | 181.261 | 6413.00 | 181.487 | |
| 353.51 | | | 107.75 | 6416.83 | 181.704 | 6424.83 | 181.930 | |
| 353.54 | | | 107.76 | 6432.48 | 182.148 | 6440.48 | 182.374 | |
| 353.60 | 353.60 | 107.77 | 107.77 | 6452.00 | 182.591 | 6460.00 | 182.817 | |
| 353.60 | | | 107.78 | 6463.81 | 183.035 | 6471.81 | 183.261 | |
| 353.64 | | | 107.79 | 6479.48 | 183.478 | 6487.48 | 183.704 | |
| 353.70 | 353.70 | 107.80 | 107.80 | 6499.00 | 183.922 | 6507.00 | 184.148 | |
| 353.70 | | | 107.81 | 6510.80 | 184.365 | 6518.80 | 184.591 | |
| 353.74 | | | 107.82 | 6526.46 | 184.809 | 6534.46 | 185.035 | |
| 353.80 | 353.80 | 107.83 | 107.83 | 6546.00 | 185.252 | 6554.00 | 185.478 | |
| 353.80 | | | 107.84 | 6557.77 | 185.695 | 6565.77 | 185.921 | |
| 353.83 | | | 107.85 | 6573.42 | 186.139 | 6581.42 | 186.365 | |
| 353.90 | 353.90 | 107.86 | 107.86 | 6593.00 | 186.582 | 6601.00 | 186.808 | |
| 353.90 | | | 107.87 | 6604.74 | 187.025 | 6612.74 | 187.251 | |
| 353.93 | | | 107.88 | 6620.39 | 187.469 | 6628.39 | 187.695 | |
| 354.00 | 354.00 | 107.89 | 107.89 | 6640.00 | 187.912 | 6648.00 | 188.138 | F.R.L. |

# Annexure - 4
# Daily Progress Reports

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 001

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34420 |
| Vessel: | OSaS SMB | Date: | 13-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2. Samson | 3. Gaurav |
| 4. Amit | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| | 1115 | Transport with survey equipment arrived at guest house. |
| 1115 | 1315 | Survey team Salman, Samson, Gaurav and Amit arrived at site. |
| 1330 | 1345 | Lunch. |
| 1345 | 1410 | Survey equipment shifted from tempo to store. |
| 1410 | 1515 | Meeting attended by Party Chief with Deputy Eng. Mukesh Joshi and Section Officer Hiren Joshi at guest house. |
| 1515 | 1610 | Site visit by survey team accompanied by Section Officer Hiren Joshi. |
| 1610 | 1700 | Location selection and marking of reference station. Boat trial. |
| 1700 | 1730 | Team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.00 sq.km** | Line km: **0.0** | Bathymetry **0.00 sq.km** | Line km: **0.0** |
| | | Topo: **0.00 sq.km** | Line km: **0.0** | Topo: **0.00 sq.km** | Line km: **0.0** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Survey preparations.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 002

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34420 |
| Vessel: | OSaS SMB | | | Date: | 14-01-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | | | Client Rep. | |
| **Survey Personnel**: | | | | | |
| 1. Salman | | 2. Samson | | 3. Gaurav | |
| 4. Amit | | 5. | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0700 | 0730 | Survey team arrived at site. |
| 0810 | 1230 | Established two reference stations near Val Tower by static DGPS observation. |
| 1230 | 1310 | Lunch. |
| 1310 | 1515 | Vertical control established by level transfer from existing reference shown by section officer to the newly established reference station (Temporary Benchmark). |
| 1515 | 1700 | Installation of digital water level gauge and level transfer from TBM. |
| 1700 | 1730 | Team returned to guest house. |
| 0700 | 0730 | Survey team arrived at site. |
| | | |
| | | |
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| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.00 sq.km** | Line km: **0.0** | Bathymetry **0.00 sq.km** | Line km: **0.0** |
| | | Topo: **0.00 sq.km** | Line km: **0.0** | Topo: **0.00 sq.km** | Line km: **0.0** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Survey preparations.

**Remarks:**

| **Party Chief** | **Client Representative** |
|---|---|

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 003

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34420 |
| Vessel: | OSaS SMB | Date: | 15-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2. Samson | 3. Gaurav |
| 4. Amit | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0815 | 0930 | Reached site and boat trial taken. |
| 0930 | | Meeting with section officer and discussed survey task. He provided the hard copy of old survey records and assured all possible help. |
| 0930 | 1530 | Boat furniture installed by a local carpenter. |
| 1530 | 1715 | Equipment shifted to boat. |
| | 1800 | Team returned to guest house. |
| | | |
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| | | | | | |
|---|---|---|---|---|---|
| | | Today's coverage | | Cumulative coverage | |
| | | Bathymetry: **0.00 sq.km** | Line km: **0.0** | Bathymetry **0.00 sq.km** | Line km: **0.0** |
| | | Topo: **0.00 sq.km** | Line km: **0.0** | Topo: **0.00 sq.km** | Line km: **0.0** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Project kick start meeting with client representatives and survey preparations.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 004

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34420 |
| Vessel: | OSaS SMB | | | Date: | 16-01-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | | | Client Rep. | |
| **Survey Personnel:** | | | | | |
| 1. Salman | | 2. Samson | | 3. Gaurav | |
| 4. Amit | | 5. | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0815 | 1100 | Reached site and set up RTK reference station and survey boat for display to Client. |
| 1100 | 1300 | Attended project kick-off meeting with senior officers from client side in presence of Project Manager Mr Santokh Chand and Mr. Narpat Singh Rathore. |
| 1300 | 1415 | Site visit and briefing conducted by survey team for Client representatives regarding conduct of survey and various equipment to be used. |
| 1415 | 1540 | Lunch break. |
| 1540 | 1730 | System preparation and check for survey. Water level data checked. |
| 1730 | 1800 | Team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.00 sq.km** | Line km: **0.0** | Bathymetry **0.00 sq.km** | Line km: **0.0** |
| | | Topo: **0.00 sq.km** | Line km: **0.0** | Topo: **0.00 sq.km** | Line km: **0.0** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Project kick start meeting with client representatives and survey preparations.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| | | | |
|---|---|---|---|
| OCEAN Science & Surveying | **DAILY PROGRESS REPORT** | *Form No.:* | Sy01R |
| | | *Revision:* | 01 |
| | | *Date:* | 11/07/2014 |
| | | *Approved By* | PKT |

DPR No. 005

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34420 |
| Vessel: | OSaS SMB | Date: | 17-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2. Samson | 3. Gaurav |
| 4. Amit | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0745 | 0835 | Reached site and set up RTK reference station for bathymetric and land survey. |
| 0835 | 0900 | Bar check carried out. Rover RTK system check carried out using known station. |
| 0900 | | Bathymetric and land survey started. |
| 1250 | 1330 | Lunch break. |
| 1330 | | Bathymetric and land survey resumed. |
| | 1710 | Bathymetry survey terminated. |
| | 1750 | Land survey terminated. Team returned at Val Tower and secured reference station. |
| 1750 | 1830 | Team returned to guest house |
| | | |
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| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.07 sq.km** | Line km: **47** | Bathymetry: **1.07 sq.km** | Line km: **47** |
| | | Topo: **0.33 sq.km** | Line km: **13.2** | Topo: **0.33 sq.km** | Line km: **13.2** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 006

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34420 |
| Vessel: | OSaS SMB | Date: | 18-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2.Samson | 3. Gaurav |
| 4. Amit | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0815 | Reached site and set up RTK reference station for bathymetric and land survey. |
| 0815 | 0845 | Bar check carried out. Rover RTK system check carried out using known station. |
| 0900 | | Bathymetric and land survey started. |
| 1230 | 1300 | Lunch break. |
| 1300 | | Bathymetric and land survey resumed. |
| | 1740 | Bathymetry survey terminated. |
| | 1730 | Land survey terminated. Team returned at Val Tower and secured reference station. |
| 1800 | 1815 | Team returned to guest house |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.18 sq.km** | Line km: **55** | Bathymetry: **2.25 sq.km** | Line km: **102** |
| | | Topo: **0.55 sq.km** | Line km: **22.5** | Topo: **0.88 sq.km** | Line km: **35.7** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 007

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34320 |
| Vessel: | OSaS SMB | | | Date: | 19-01-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | | | Client Rep. | |
| **Survey Personnel**: | | | | | |
| 1. Salman | | 2.Samson | | 3. Gaurav | |
| 4. Amit | | 5. | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0730 | 0810 | Reached site and set up RTK reference station at two location for bathymetric and land survey. |
| 0815 | 0845 | Bar check carried out. RTK system check carried out using known station. |
| 0900 | | Bathymetric survey started. |
| 0915 | | Land survey started. |
| | 1730 | Bathymetry survey terminated and reference station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1800 | 1810 | Team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.17 sq.km** | Line km: **54** | Bathymetry: **3.42 sq.km** | Line km: **156** |
| | | Topo: **0.41 sq.km** | Line km: **16.8** | Topo: **1.29 sq.km** | Line km: **52.5** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| **Party Chief** | **Client Representative** |
|---|---|

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 008

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 20-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson | 3. Gaurav |
| 4. Amit | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | | RTK System | SBES System | Auto Level | Heave sensor |
| | | Water Level Meter | Bar Check | Generator | Hypack |
| | | Computer | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0745 | 0815 | Reached site and set up RTK reference station at two location for bathymetric and land survey. |
| 0815 | 0845 | Bar check carried out. RTK system check carried out using known station. |
| 0900 | | Bathymetric survey started. |
| 0915 | | Land survey started. |
| | 1715 | Bathymetry survey terminated and reference station secured. |
| | 1730 | Land survey terminated and reference station secured. |
| 1745 | 1810 | Team returned to guest house |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.67 sq.km** | Line km: **34.2** | Bathymetry: **4.09sq.km** | Line km: **190.2** |
| | | Topo: **0.54 sq.km** | Line km: **22.4** | Topo: **1.83 sq.km** | Line km: **74.9** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 009

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34320 |
| Vessel: | OSaS SMB | | | Date: | 21-01-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | | | Client Rep. | |
| **Survey Personnel**: | | | | | |
| 1. Salman | | 2.Samson Chacko | | 3. Gaurav Sharma | |
| 4. Amit Bhardwaj | | 5. | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |

| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
|---|---|---|---|---|
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0730 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0730 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0840 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1600 | Bathymetry survey terminated in view of Executive Engineer visit at guest house. Section officer requested Party Chief to be present at guest house during visit. |
| | 1815 | Land survey terminated and reference station secured. |
| 1845 | 1945 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.01 sq.km** | Line km: **44.7** | Bathymetry: **5.09sq.km** | Line km: **234.9** |
| | | Topo: **0.4 sq.km** | Line km: **16.4** | Topo: **2.23 sq.km** | Line km: **91.3** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| **Party Chief** | **Client Representative** |
|---|---|

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 010

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 22-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0730 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0805 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1740 | Bathymetry survey terminated and base station secured. |
| | 1745 | Land survey terminated and reference station secured. |
| 1745 | 1900 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.13 sq.km** | Line km: **49** | Bathymetry: **6.22sq.km** | Line km: **283.9** |
| | | Topo: **0.42 sq.km** | Line km: **17.22** | Topo: **2.65 sq.km** | Line km: **108.6** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 011

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 23-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0815 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1740 | Bathymetry survey terminated and base station secured. |
| | 1750 | Land survey terminated and reference station secured. |
| 1750 | 1945 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.8 sq.km** | Line km: **33.2** | Bathymetry: **7.02sq.km** | Line km: **317.1** |
| | | Topo: **0.59 sq.km** | Line km: **23.78** | Topo: **3.24 sq.km** | Line km: **132.38** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 012

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 24-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0745 | 0815 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0745 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1730 | Bathymetry survey terminated and base station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1750 | 1945 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.27 sq.km** | Line km: **52.2** | Bathymetry: **8.29sq.km** | Line km: **369.3** |
| | | Topo: **0.6 sq.km** | Line km: **24.6** | Topo: **3.84 sq.km** | Line km: **156.9** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 013

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 25-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | | RTK System | SBES System | Auto Level | Heave sensor |
| | | Water Level Meter | Bar Check | Generator | Hypack |
| | | Computer | | | |
| **Time (hrs)** | | **Activities** | | | |
| 0740 | 0810 | Bathy team reached at site and set up RTK reference station for bathymetric survey. | | | |
| 0740 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. | | | |
| 0810 | 0820 | Bar check carried out. | | | |
| 0820 | | Bathymetric survey started. | | | |
| 0840 | | Land survey started. | | | |
| | 1730 | Bathymetry survey terminated and base station secured. | | | |
| | 1740 | Land survey terminated and reference station secured. | | | |
| 1740 | 1930 | Land Survey team returned to guest house. | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.14 sq.km** | Line km: **47** | Bathymetry: **9.43sq.km** | Line km: **416.3** |
| | | Topo: **0.58 sq.km** | Line km: **23.8** | Topo: **4.42 sq.km** | Line km: **180.7** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 014

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34320 |
| Vessel: | OSaS SMB | | | Date: | 26-01-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | | | Client Rep. | |
| **Survey Personnel**: | | | | | |
| 1. Salman | | 2.Samson Chacko | | 3. Gaurav Sharma | |
| 4. Amit Bhardwaj | | 5.Binu Kumar | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |

| **Equipment** | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0730 | 0800 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1745 | Bathymetry survey terminated and base station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.24 sq.km** | Line km: **51.0** | Bathymetry: **10.67sq.km** | Line km: **467.3** |
| | | Topo: **0.64 sq.km** | Line km: **26.5** | Topo: **5.06 sq.km** | Line km: **207.2** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| **Party Chief** | **Client Representative** |
|---|---|

| | | | |
|---|---|---|---|
| OCEAN Science & Surveying | **DAILY PROGRESS REPORT** | *Form No.:* | Sy01R |
| | | *Revision:* | 01 |
| | | *Date:* | 11/07/2014 |
| | | *Approved By* | PKT |

DPR No. 015

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 27-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel**:

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| **Time (hrs)** | | **Activities** |
|---|---|---|
| 0740 | 0805 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1735 | Bathymetry survey terminated and base station secured. |
| | 1730 | Land survey terminated and reference station secured. |
| 1730 | 1910 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.05 sq.km** | Line km: **43.0** | Bathymetry: **11.72sq.km** | Line km: **510.3** |
| | | Topo: **0.79 sq.km** | Line km: **32.3** | Topo: **5.85 sq.km** | Line km: **239.5** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** Syadav | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 016

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 28-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0800 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1745 | Bathymetry survey terminated and base station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.87 sq.km** | Line km: **36** | Bathymetry: **12.59sq.km** | Line km: **546.3** |
| | | Topo: **0.60 sq.km** | Line km: **24.6** | Topo: **6.45 sq.km** | Line km: **264.1** |
| | | Weather downtime today: Nil hours | | Cumulative weather downtime: Nil hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 017

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 29-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0810 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0750 | 0840 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0840 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1300 | Bathymetry survey terminated due to high wind speed and swells. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1915 | Land Survey team returned to guest house. |
| | | |
| | | |
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| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.49 sq.km** | Line km: **20.2** | Bathymetry: **13.08sq.km** | Line km: **566.5** |
| | | Topo: **0.60 sq.km** | Line km: **24.5** | Topo: **7.05 sq.km** | Line km: **288.6** |
| | | Weather downtime today: 4 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 018

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 30-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0810 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0750 | 0840 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0810 | 0825 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1745 | Bathymetry survey terminated and reference station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1900 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.38 sq.km** | Line km: **56.6** | Bathymetry: **14.46 sq.km** | Line km: **623.1** |
| | | Topo: **0.54 sq.km** | Line km: **22.1** | Topo: **7.59 sq.km** | Line km: **310.7** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| Party Chief | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 019

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 31-01-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Salman | 2.Samson Chacko | 3. Gaurav Sharma |
| 4. Amit Bhardwaj | 5.Binu Kumar | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0815 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0750 | 0840 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0835 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1630 | Bathymetry survey terminated and reference station secured. |
| | 1730 | Land survey terminated and reference station secured. |
| 1730 | 1845 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.0 sq.km** | Line km: **42** | Bathymetry: **15.46 sq.km** | Line km: **665.1** |
| | | Topo: **0.56 sq.km** | Line km: **22.9** | Topo: **8.15 sq.km** | Line km: 333.6 |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| Party Chief  | Client Representative |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 020

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 01-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0810 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0745 | 0845 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0835 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1745 | Bathymetry survey terminated and reference station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1915 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.32 sq.km** | Line km: **54.2** | Bathymetry: **16.78 sq.km** | Line km: **719.3** |
| | | Topo: **0.58 sq.km** | Line km: **23.8** | Topo: **8.73 sq.km** | Line km: **357.4** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 021

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 02-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0800 | Bathy team reached at site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached at site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1730 | Bathymetry survey terminated and reference station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.26 sq.km** | Line km: **51.7** | Bathymetry: **18.04 sq.km** | Line km: **771** |
| | | Topo: **0.60 sq.km** | Line km: **24.6** | Topo: **9.33 sq.km** | Line km: **382** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 022

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 03-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1740 | Bathymetry survey terminated and reference station secured. |
| | 1730 | Land survey terminated and reference station secured. |
| 1730 | 1915 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.27 sq.km** | Line km: **52** | Bathymetry: **19.31 sq.km** | Line km: **823** |
| | | Topo: **0.59 sq.km** | Line km: **24.2** | Topo: **9.92 sq.km** | Line km: **406.2** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 023

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 04-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1800 | Bathymetry survey terminated and reference station secured. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 2015 | Land Survey team returned to guest house. |
| | | |
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| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.37 sq.km** | Line km: **56.5** | Bathymetry: **20.68 sq.km** | Line km: **879.5** |
| | | Topo: **0.69 sq.km** | Line km: **28.3** | Topo: **10.61 sq.km** | Line km: **434.5** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 024

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 05-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1730 | Bathymetry survey terminated and reference station secured. |
| | 1735 | Land survey terminated and reference station secured. |
| 1735 | 1915 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.22 sq.km** | Line km: **50.1** | Bathymetry: **21.9 sq.km** | Line km: **929.6** |
| | | Topo: **0.55 sq.km** | Line km: **22.5** | Topo: **11.16 sq.km** | Line km: **457** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 4 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 025

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 06-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| | | Bathymetric survey could not be started in view of strong wind and high swells. |
| 0850 | | Land survey started. |
| | 1730 | Land survey terminated and reference station secured. |
| 1730 | 1900 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: --- **sq.km** | Line km: --- | Bathymetry: **21.9 sq.km** | Line km: **929.6** |
| | | Topo: **0.57 sq.km** | Line km: **23.3** | Topo: **11.73 sq.km** | Line km: **480.3** |
| | | Weather downtime today: 10 hours | | Cumulative weather downtime: 14 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 026

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 07-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0750 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0800 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1230 | Bathymetry survey terminated due to high swells and wind. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1900 | Land Survey team returned to guest house. |
| | | |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.39 sq.km** | Line km: **16** | Bathymetry: **22.29 sq.km** | Line km: **945.6** |
| | | Topo: **0.45 sq.km** | Line km: **18.4** | Topo: **12.18 sq.km** | Line km: **498.7** |
| | | Weather downtime today: 5 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 027

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 08-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1730 | Bathymetric survey terminated and reference station secured. |
| | 1745 | Land survey terminated and reference station secured. |
| 1745 | 1930 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.15 sq.km** | Line km: **47.1** | Bathymetry: **23.44 sq.km** | Line km: **992.7** |
| | | Topo: **0.46 sq.km** | Line km: **18.9** | Topo: **12.64 sq.km** | Line km: **517.6** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 028

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 09-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Sunil Kumar Yadav | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Gaurav Sharma | 3. Amit Bhardwaj |
| 4. Binu Kumar | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1300 | Bathymetric survey terminated and reference station secured. |
| | 1745 | Land survey terminated and reference station secured. |
| 1745 | 2000 | Land Survey team returned to guest house. |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.38 sq.km** | Line km: **15.24** | Bathymetry: **23.82 sq.km** | Line km: **1007.94** |
| | | Topo: **0.40 sq.km** | Line km: **16.4** | Topo: **13.04 sq.km** | Line km: **534** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 029

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 10-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | |
|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0810 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0810 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0825 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0835 | | Land survey started. |
| | 1900 | Bathymetric survey terminated and reference station secured. |
| | 1900 | Land survey terminated and reference station secured. |
| 1900 | 1915 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.05 sq.km** | Line km: **42.75** | Bathymetry: **24.87 sq.km** | Line km: **1050.69** |
| | | Topo: **0.30 sq.km** | Line km: **12.30** | Topo: **13.34 sq.km** | Line km: **546.3** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 030

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 11-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0800 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0810 | | Land survey started. |
| | 1800 | Bathymetric survey terminated and reference station secured. |
| | 1900 | Land survey terminated and reference station secured. |
| 1900 | 1915 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **.90sq.km** | Line km: **36.03** | Bathymetry: **25.77 sq.km** | Line km: **1086.72** |
| | | Topo: **0.44 sq.km** | Line km: **18.04** | Topo: **13.78 sq.km** | Line km: **564.34** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 031

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 12-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1800 | Bathymetric survey terminated and reference station secured. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1900 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.96 sq.km** | Line km: **39.11** | Bathymetry: **26.73 sq.km** | Line km: **1125.83** |
| | | Topo: **0.54 sq.km** | Line km: **22.14** | Topo: **14.32 sq.km** | Line km: **586.48** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| **Party Chief** | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 032

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 13-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1740 | Bathymetric survey terminated and reference station secured. |
| | 1900 | Land survey terminated and reference station secured. |
| 1900 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **1.03 sq.km** | Line km: **40.89** | Bathymetry: **27.76 sq.km** | Line km: **1166.72** |
| | | Topo: **0.47 sq.km** | Line km: **19.27** | Topo: **14.79 sq.km** | Line km: **605.75** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 033

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 14-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0810 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0750 | 0840 | Land survey team reached site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0840 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1830 | Bathymetric survey terminated and reference station secured. |
| | 1900 | Land survey terminated and reference station secured. |
| 1900 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.74 sq.km** | Line km: **30.88** | Bathymetry: **28.5 sq.km** | Line km: **1197.6** |
| | | Topo: **0.36 sq.km** | Line km: **14.76** | Topo: **15.15 sq.km** | Line km: **623.51** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 034

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 15-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1815 | Bathymetric survey terminated and reference station secured. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1830 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.58 sq.km** | Line km: **23.01** | Bathymetry: **29.08 sq.km** | Line km: **1220.61** |
| | | Topo: **0.30 sq.km** | Line km: **12.30** | Topo: **15.45 sq.km** | Line km: **635.81** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 035

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 16-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0735 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1745 | Bathymetric survey terminated and reference station secured. |
| | 1730 | Land survey terminated and reference station secured. |
| 1730 | 1800 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.486sq.km** | Line km: **19.46** | Bathymetry: **29.66 sq.km** | Line km: **1240.07** |
| | | Topo: **0.33 sq.km** | Line km: **13.53** | Topo: **15.78 sq.km** | Line km: **649.34** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 036

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 17-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0810 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0820 | | Bathymetric survey started. |
| 0840 | | Land survey started. |
| | 1830 | Bathymetric survey terminated and reference station secured. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1945 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.43 sq.km** | Line km: **17.4** | Bathymetry: **29.96 sq.km** | Line km: **1257.47** |
| | | Topo: **0.645sq.km** | Line km: **25.83** | Topo: **16.433 sq.km** | Line km: **675.17** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 037

| | | | | | |
|---|---|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | | | Project No: | P34320 |
| Vessel: | OSaS SMB | | | Date: | 18-02-2021 |
| Location: | BHADAR DAM | | | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | | | Client Rep. | |
| **Survey Personnel:** | | | | | |
| 1. Samson Chacko | | 2. Amit Bhardwaj | | 3. Binu Kumar | |
| 4. | | 5. | | 6. | |
| 7. | | 8. | | 9. | |
| 10. | | | | | |
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0750 | 0820 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0750 | 0835 | Land survey team reached site and set up RTK reference station for land survey. |
| 0820 | 0830 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0845 | | Land survey started. |
| | 1830 | Bathymetric survey terminated and reference station secured. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1940 | Land Survey team returned to guest house. |
| | | |
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| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.50 sq.km** | Line km: **21.36** | Bathymetry: **30.53 sq.km** | Line km: **1278.83** |
| | | Topo: **0.63 sq.km** | Line km: **25.42** | Topo: **17.06 sq.km** | Line km: **700.59** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 038

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 19-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0810 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0830 | | Land survey started. |
| | 1800 | Bathymetric survey terminated and reference station secured. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1930 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.57 sq.km** | Line km: **22.96** | Bathymetry: **31.104 sq.km** | Line km: **1301.79** |
| | | Topo: **0.625 sq.km** | Line km: **25.01** | Topo: **17.693 sq.km** | Line km: **725.6** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 039

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 20-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey started. |
| 0830 | | Land survey started. |
| | 1740 | Bathymetric survey terminated and reference station secured. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1910 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.48sq.km** | Line km: **19.15** | Bathymetry: **31.58 sq.km** | Line km: **1320.94** |
| | | Topo: **0.55 sq.km** | Line km: **22.15** | Topo: **18.246 sq.km** | Line km: **747.75** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 040

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 21-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey Including Infill survey for gap filling started. |
| 0850 | | Land survey started. |
| | 1745 | Bathymetric survey terminated and reference station secured. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1930 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.29 sq.km** | Line km: **11.89** | Bathymetry: **31.88 sq.km** | Line km: **1332.83** |
| | | Topo: **0.63 sq.km** | Line km: **25.01** | Topo: **18.871 sq.km** | Line km: **772.76** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 19 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 041

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 22-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0740 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| | | Bathymetric survey could not be started in view of strong wind and high swells. |
| 0850 | | Land survey started. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 2000 | Land Survey team returned to guest house. |
| | | |
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| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: --- **sq.km** | Line km: --- | Bathymetry: **31.89 sq.km** | Line km: **1332.83** |
| | | Topo: **0.522 sq.km** | Line km: **20.91** | Topo: **19.393 sq.km** | Line km: **793.67** |
| | | Weather downtime today: 10 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 042

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 23-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0740 | 0810 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0745 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0815 | 0830 | Bar check carried out. |
| 0835 | | Bathymetric survey started. |
| 0850 | | Land survey started. |
| | 1745 | Bathymetry survey terminated and reference station secured. |
| | 1740 | Land survey terminated and reference station secured. |
| 1740 | 1900 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.51 sq.km** | Line km: **20.91** | Bathymetry: **32.4 sq.km** | Line km: **1353.74** |
| | | Topo: **0.50 sq.km** | Line km: **20.50** | Topo: **19.9 sq.km** | Line km: **814.17** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 043

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 24-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0800 | Bathy team reached site and set up RTK reference station for bathymetric survey. |
| 0740 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 0820 | Bar check carried out. |
| 0830 | | Bathymetric survey Including Infill survey for gap filling started. |
| 0850 | | Land survey started. |
| | 1750 | Bathymetry survey terminated and reference station secured. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1930 | Land Survey team returned to guest house. |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: **0.30 sq.km** | Line km: **12.3** | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.451 sq.km** | Line km: **18.04** | Topo: **20.356 sq.km** | Line km: **832.21** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks: Completed bathymetry survey of Bhadar dam 1.**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 044

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 25-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0750 | 0810 | Bathy team reached site and Demobilisation started. |
| 0750 | 0855 | Land survey team reached site and set up RTK reference station for land survey. |
| 0810 | 1500 | Demobbed bathymetry survey equipment from boat. |
| 0855 | | Land survey started. |
| | 1745 | Land survey terminated and reference station secured. |
| 1745 | 1900 | Land Survey team returned to guest house. |
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| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.56 sq.km** | Line km: **22.96** | Topo: **20.93 sq.km** | Line km: **855.17** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** To continue topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 045

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 26-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0800 | 0900 | Land survey team reached site and set up RTK reference station for land survey. |
| 0900 | | Land survey started. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1930 | Land Survey team returned to guest house. |
| | | |
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| | | |
| | | |
| | | |

| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.572 sq.km** | Line km: **20.91** | Topo: **21.502 sq.km** | Line km: **878.08** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 046

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 27-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

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|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0830 | Land survey team reached site and set up RTK reference station for land survey. |
| 0840 | | Land survey started. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1915 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.80 sq.km** | Line km: **32.8** | Topo: **22.322 sq.km** | Line km: **910.88** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 047

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 28-02-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0850 | | Land survey started. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 1930 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.564 sq.km** | Line km: **22.55** | Topo: **22.886 sq.km** | Line km: **933.43** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 048

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 01-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0800 | 0900 | Land survey team reached site and set up RTK reference station for land survey. |
| 0900 | | Land survey started. |
| | 1845 | Land survey terminated and reference station secured. |
| 1845 | 1950 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage |
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.553 sq.km** | Line km: **22.14** | Topo: **23.439 sq.km** | Line km: **955.57** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 049

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 02-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

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|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0900 | Land survey team reached site and set up RTK reference station for land survey. |
| 0905 | | Land survey started. |
| | 1830 | Land survey terminated and reference station secured. |
| 1830 | 2000 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.584 sq.km** | Line km: **23.37** | Topo: **24.023 sq.km** | Line km: **978.94** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 050

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 03-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

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|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0845 | Land survey team reached site and set up RTK reference station for land survey. |
| 0850 | | Land survey started. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1930 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.56 sq.km** | Line km: **22.96** | Topo: **24.597 sq.km** | Line km: **1001.9** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with topographic survey.

**Remarks:**

**Party Chief**

**Client Representative**

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 051

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 04-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0745 | 0900 | Land survey team reached site and set up RTK reference station for land survey. |
| 0905 | | Land survey started. |
| | 1815 | Land survey terminated and reference station secured. |
| 1815 | 1945 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.553 sq.km** | Line km: **22.14** | Topo: **25.15 sq.km** | Line km: **1024.04** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

Party Chief

Client Representative

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 052

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 05-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0730 | 0900 | Land survey team reached site and set up RTK reference station for land survey. |
| 0905 | | Land survey started. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 1930 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.38 sq.km** | Line km: **15.58** | Topo: **25.49 sq.km** | Line km: **1039.62** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Continue with bathymetric and topographic survey.

**Remarks:**

| | |
|---|---|
| Party Chief | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 053

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 06-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| Equipment | | | | | |
|---|---|---|---|---|---|
| | RTK System | SBES System | Auto Level | Heave sensor | |
| | Water Level Meter | Bar Check | Generator | Hypack | |
| | Computer | | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0645 | 0815 | Land survey team reached site and set up RTK reference station for land survey. |
| 0820 | | Land survey started. |
| | 1800 | Land survey terminated and reference station secured. |
| 1800 | 2000 | Land Survey team returned to guest house. |
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| | | Today's coverage | | Cumulative coverage | |
|---|---|---|---|---|---|
| | | Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| | | Topo: **0.823 sq.km** | Line km: **32.923** | Topo: **26.372 sq.km** | Line km: **1072.543** |
| | | Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Equipment and team shift to next Location.

**Remarks:**

| | |
|---|---|
| Party Chief | **Client Representative** |

| OCEAN Science & Surveying | DAILY PROGRESS REPORT | Form No.: | Sy01R |
|---|---|---|---|
| | | Revision: | 01 |
| | | Date: | 11/07/2014 |
| | | Approved By | PKT |

DPR No. 054

| | | | |
|---|---|---|---|
| Client: | Narmada Water Resources, Water Supply & Kalpsar Department | Project No: | P34320 |
| Vessel: | OSaS SMB | Date: | 07-03-2021 |
| Location: | BHADAR DAM | Sheet No: | 1 of 1 |
| Party Chief: Gaurav Sharma | | Client Rep. | |

**Survey Personnel:**

| | | |
|---|---|---|
| 1. Samson Chacko | 2. Amit Bhardwaj | 3. Binu Kumar |
| 4. | 5. | 6. |
| 7. | 8. | 9. |
| 10. | | |

| | | | | |
|---|---|---|---|---|
| **Equipment** | RTK System | SBES System | Auto Level | Heave sensor |
| | Water Level Meter | Bar Check | Generator | Hypack |
| | Computer | | | |

| Time (hrs) | | Activities |
|---|---|---|
| 0800 | 1700 | Servicing, maintenance and packing of RTK systems. |
| | | All on site Data processing Completed. |
| | | Requesting for Demobilisation. |
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|---|---|---|---|
| Today's coverage | | Cumulative coverage | |
| Bathymetry: -- **sq.km** | Line km: -- | Bathymetry: **32.7 sq.km** | Line km: **1366.04** |
| Topo: -- **sq.km** | Line km: -- | Topo: **26.372 sq.km** | Line km: **1072.543** |
| Weather downtime today: 0 hours | | Cumulative weather downtime: 29 hours | |

**Plan for next 24 hours:** Next Location Bhadar-2 Site visit/ arrangement of food and accommodation.

**Remarks:**

| | |
|---|---|
| Party Chief | **Client Representative** |