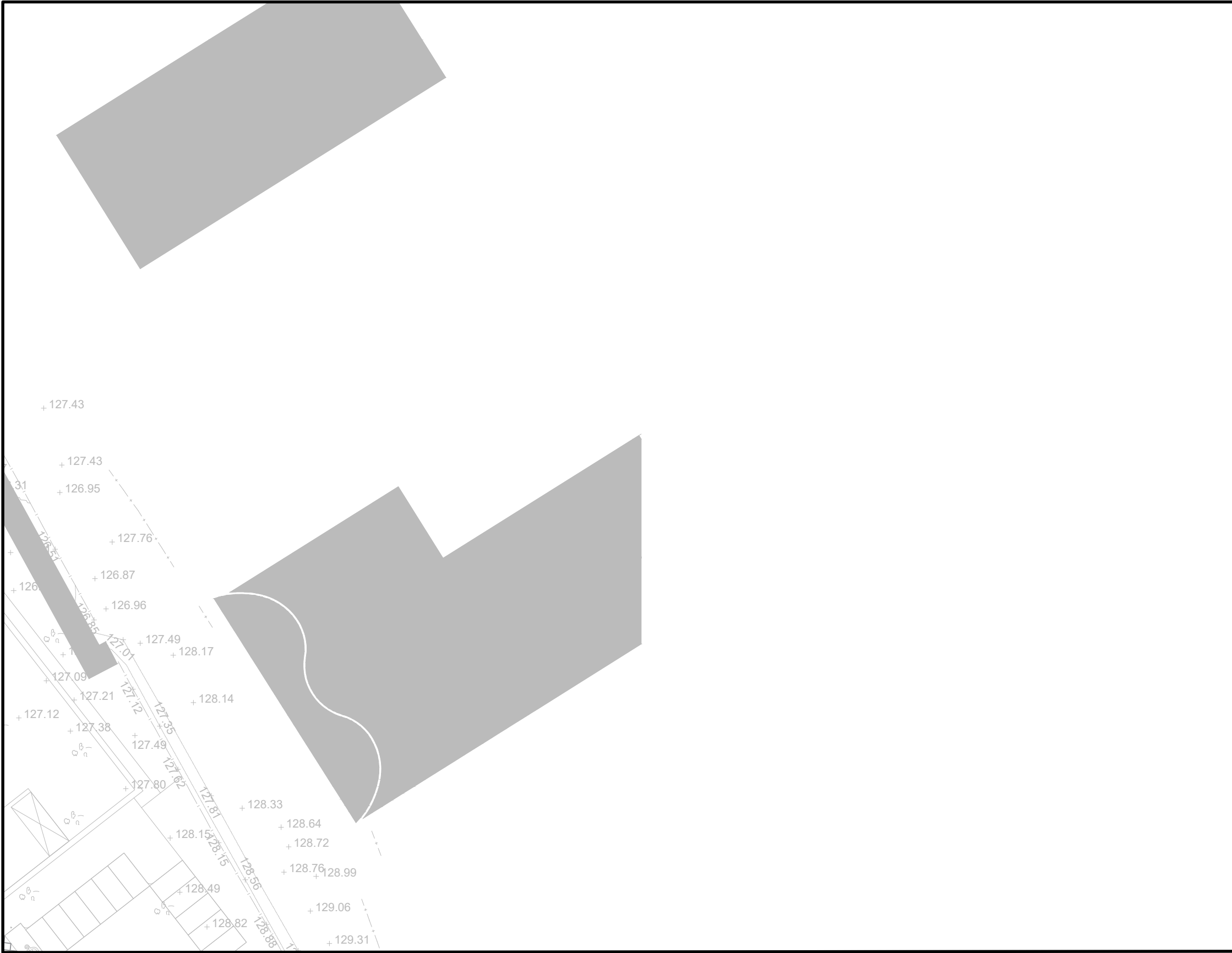
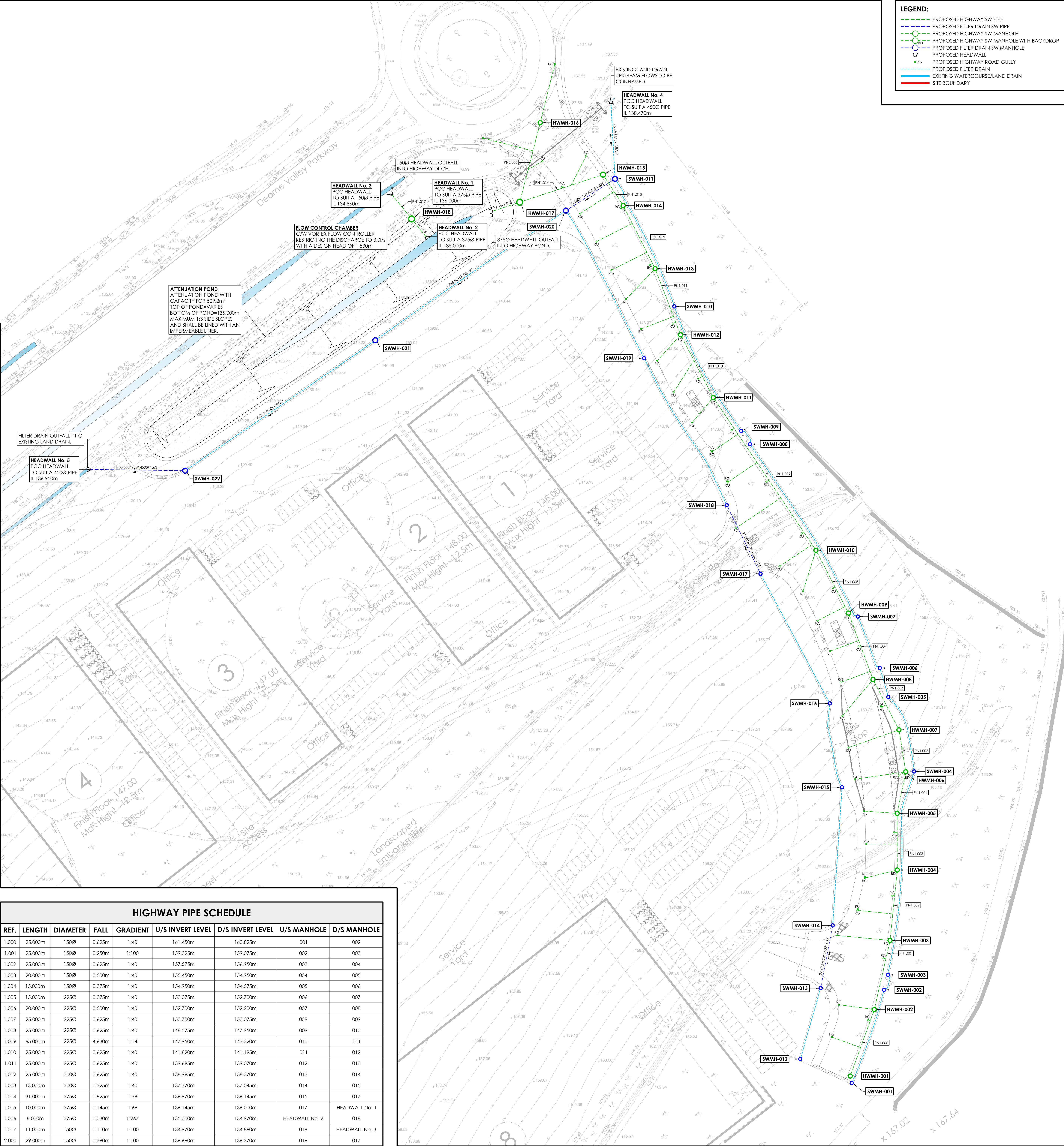




| FILTER DRAIN MANHOLE SCHEDULE |             |                 |            |        |            |            |          |        |                      |
|-------------------------------|-------------|-----------------|------------|--------|------------|------------|----------|--------|----------------------|
| REF.                          | COVER LEVEL | INVERT LEVEL    | SUMP DEPTH | DEPTH  | EASTINGS   | NORTHINGS  | DIAMETER | TYPE   | COVER                |
| HEADWALL No. 5                | N/A         | 136.950m - 4500 | N/A        | N/A    | 435744.071 | 401213.932 | N/A      | N/A    | N/A                  |
| HEADWALL No. 4                | N/A         | 138.470m - 4500 | N/A        | N/A    | 435927.938 | 401342.569 | N/A      | N/A    | N/A                  |
| 001                           | 163.061     | 162.260m - 1500 | 0.00m      | 0.801m | 436013.004 | 400997.267 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 002                           | 161.248     | 160.445m - 1500 | 0.00m      | 0.803m | 436024.387 | 401030.117 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 003                           | 160.903     | 160.100m - 1500 | 0.00m      | 0.803m | 436025.781 | 401035.398 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 004                           | 155.709     | 154.905m - 1500 | 0.00m      | 0.804m | 436035.042 | 401107.269 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 005                           | 153.724     | 152.920m - 1500 | 0.00m      | 0.804m | 436025.895 | 401133.541 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 006                           | 153.436     | 152.635m - 1500 | 0.00m      | 0.801m | 436022.900 | 401143.793 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 007                           | 151.665     | 150.865m - 1500 | 0.00m      | 0.800m | 436015.090 | 401161.950 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 008                           | 146.146     | 145.345m - 1500 | 0.00m      | 0.801m | 435977.042 | 401222.872 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 009                           | 145.722     | 144.920m - 1500 | 0.00m      | 0.802m | 435973.894 | 401227.488 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 010                           | 141.799     | 141.000m - 1500 | 0.00m      | 0.799m | 435950.336 | 401271.493 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 011                           | 139.075     | 138.275m - 1500 | 0.00m      | 1.100m | 435929.370 | 401316.556 | 15000    | TYPE E | 600x600 - CLASS D400 |
| 012                           | 162.993     | 162.190m - 1500 | 0.00m      | 0.803m | 435994.812 | 401005.701 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 013                           | 161.876     | 161.075m - 1500 | 0.00m      | 0.801m | 436001.957 | 401030.700 | 9000     | TYPE E | 600x600 - CLASS D400 |
| 014                           | 160.516     | 159.715m - 1500 | 0.00m      | 0.801m | 436006.228 | 401052.893 | 9000     | TYPE E | 600x600 - CLASS D400 |
| 015                           | 155.838     | 155.035m - 1500 | 0.00m      | 0.803m | 436009.540 | 401101.678 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 016                           | 153.400     | 152.600m - 1500 | 0.00m      | 0.800m | 436005.200 | 401131.295 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 017                           | 149.382     | 148.580m - 1500 | 0.00m      | 0.802m | 435980.750 | 401177.049 | 9000     | TYPE E | 600x600 - CLASS D400 |
| 018                           | 147.445     | 146.645m - 1500 | 0.00m      | 0.800m | 435968.817 | 401201.268 | 9000     | TYPE E | 600x600 - CLASS D400 |
| 019                           | 142.726     | 141.925m - 1500 | 0.00m      | 0.801m | 435939.653 | 401253.201 | 12000    | TYPE E | 600x600 - CLASS D400 |
| 020                           | 138.782     | 137.980m - 1500 | 0.00m      | 0.842m | 435912.042 | 401305.324 | 15000    | TYPE E | 600x600 - CLASS D400 |
| 021                           | 139.100     | 137.700m - 4500 | 0.00m      | 1.400m | 435844.712 | 401259.545 | 15000    | TYPE E | 600x600 - CLASS D400 |
| 022                           | 138.716     | 137.480m - 4500 | 0.00m      | 1.236m | 435777.568 | 401213.478 | 15000    | TYPE E | 600x600 - CLASS D400 |

| HIGHWAY MANHOLE SCHEDULE |             |                 |            |        |            |            |          |        |                      |
|--------------------------|-------------|-----------------|------------|--------|------------|------------|----------|--------|----------------------|
| REF.                     | COVER LEVEL | INVERT LEVEL    | SUMP DEPTH | DEPTH  | EASTINGS   | NORTHINGS  | DIAMETER | TYPE   | COVER                |
| HEADWALL No. 3           | N/A         | 134.860m - 1500 | N/A        | N/A    | 435850.631 | 401310.921 | N/A      | N/A    | N/A                  |
| HEADWALL No. 2           | N/A         | 135.000m - 3750 | N/A        | N/A    | 435862.588 | 401296.155 | N/A      | N/A    | N/A                  |
| HEADWALL No. 1           | N/A         | 136.000m - 3750 | N/A        | N/A    | 435886.215 | 401305.145 | N/A      | N/A    | N/A                  |
| 001                      | 162.948     | 161.450m - 1500 | 0.00m      | 1.498m | 436012.433 | 400999.701 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 002                      | 161.675     | 160.825m - 1500 | 0.00m      | 2.350m | 436020.933 | 401023.211 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 003                      | 160.050     | 159.075m - 1500 | 0.00m      | 2.475m | 436026.496 | 401047.584 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 004                      | 158.200     | 156.950m - 1500 | 0.00m      | 2.750m | 436029.040 | 401072.455 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 005                      | 156.715     | 154.950m - 1500 | 0.00m      | 1.765m | 436028.993 | 401092.455 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 006                      | 155.629     | 154.575m - 1500 | 0.00m      | 2.554m | 436032.038 | 401107.142 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 007                      | 154.543     | 152.700m - 2250 | 0.00m      | 1.843m | 436029.445 | 401121.950 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 008                      | 153.151     | 152.200m - 2250 | 0.00m      | 2.451m | 436020.496 | 401139.735 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 009                      | 151.297     | 150.075m - 2250 | 0.00m      | 2.722m | 436011.816 | 401163.180 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 010                      | 149.443     | 147.950m - 2250 | 0.00m      | 1.493m | 436000.334 | 401185.387 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 011                      | 144.523     | 143.320m - 2250 | 0.00m      | 2.703m | 435964.068 | 401239.329 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 012                      | 142.563     | 141.195m - 2250 | 0.00m      | 2.868m | 435952.496 | 401261.490 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 013                      | 140.719     | 139.070m - 2250 | 0.00m      | 1.724m | 435943.528 | 401284.826 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 014                      | 139.305     | 138.370m - 3000 | 0.00m      | 1.935m | 435932.240 | 401307.132 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 015                      | 138.745     | 137.045m - 3000 | 0.500m     | 2.275m | 435925.141 | 401318.023 | 15000    | TYPE B | 600x600 - CLASS D400 |
| 016                      | 137.862     | 136.660m - 1500 | 0.00m      | 1.202m | 435902.943 | 401336.369 | 12000    | TYPE B | 600x600 - CLASS D400 |
| 017                      | 138.856     | 136.145m - 3750 | 0.500m     | 2.711m | 435895.709 | 401308.286 | 18000    | TYPE B | 600x600 - CLASS D400 |
| 018                      | 137.000     | 134.970m - 3750 | 0.500m     | 2.530m | 435857.553 | 401302.372 | 18000    | TYPE B | 600x600 - CLASS D400 |



| HIGHWAY PIPE SCHEDULE |        |          |        |          |                  |                  |                |                |
|-----------------------|--------|----------|--------|----------|------------------|------------------|----------------|----------------|
| REF.                  | LENGTH | DIAMETER | FALL   | GRADIENT | U/S INVERT LEVEL | D/S INVERT LEVEL | U/S MANHOLE    | D/S MANHOLE    |
| 1.000                 | 25.00m | 1500     | 0.625m | 1:40     | 161.450m         | 160.825m         | 001            | 002            |
| 1.001                 | 25.00m | 1500     | 0.250m | 1:100    | 159.325m         | 159.075m         | 002            | 003            |
| 1.002                 | 25.00m | 1500     | 0.625m | 1:40     | 157.575m         | 156.950m         | 003            | 004            |
| 1.003                 | 20.00m | 1500     | 0.500m | 1:40     | 155.450m         | 154.950m         | 004            | 005            |
| 1.004                 | 15.00m | 1500     | 0.375m | 1:40     | 154.950m         | 154.575m         | 005            | 006            |
| 1.005                 | 15.00m | 2250     | 0.375m | 1:40     | 153.075m         | 152.700m         | 006            | 007            |
| 1.006                 | 20.00m | 2250     | 0.500m | 1:40     | 152.700m         | 152.200m         | 007            | 008            |
| 1.007                 | 25.00m | 2250     | 0.625m | 1:40     | 150.700m         | 150.075m         | 008            | 009            |
| 1.008                 | 25.00m | 2250     | 0.625m | 1:40     | 148.575m         | 147.950m         | 009            | 010            |
| 1.009                 | 65.00m | 2250     | 4.630m | 1:14     | 147.950m         | 143.320m         | 010            | 011            |
| 1.010                 | 25.00m | 2250     | 0.625m | 1:40     | 141.820m         | 141.195m         | 011            | 012            |
| 1.011                 | 25.00m | 2250     | 0.625m | 1:40     | 139.695m         | 139.070m         | 012            | 013            |
| 1.012                 | 25.00m | 3000     | 0.625m | 1:40     | 138.995m         | 138.370m         | 013            | 014            |
| 1.013                 | 13.00m | 3000     | 0.325m | 1:40     | 137.370m         | 137.045m         | 014            | 015            |
| 1.014                 | 31.00m | 3750     | 0.825m | 1:38     | 136.970m         | 136.145m         | 015            | 017            |
| 1.015                 | 10.00m | 3750     | 0.145m | 1:69     | 136.145m         | 136.000m         | 017            | HEADWALL No. 1 |
| 1.016                 | 8.00m  | 3750     | 0.030m | 1:267    | 135.000m         | 134.970m         | HEADWALL No. 2 | 018            |
| 1.017                 | 11.00m | 1500     | 0.110m | 1:100    | 134.970m         | 134.860m         | 018            | HEADWALL No. 3 |
| 2.000                 | 29.00m | 1500     | 0.290m | 1:100    | 136.660m         | 136.370m         | 016            | 017            |

**LEGEND:**

- PROPOSED HIGHWAY SW PIPE
- PROPOSED FILTER DRAIN SW PIPE
- PROPOSED HIGHWAY SW MANHOLE
- PROPOSED HIGHWAY SW MANHOLE WITH BACKDROP
- PROPOSED FILTER DRAIN SW MANHOLE
- PROPOSED HEADWALL
- PROPOSED FILTER DRAIN
- PROPOSED HIGHWAY ROAD GULLY
- EXISTING WATERCOURSE/LAND DRAIN
- SITE BOUNDARY

**DO NOT SCALE**  
**NOTES**

- ANY DRAINAGE TO BE PUT FORWARD FOR ADOPTION EITHER WITHIN THE SITE OR OUTSIDE SHALL BE CONSTRUCTED TO STANDARDS FOR ADOPTION LATEST EDITION AND ANY SPECIFIC REQUIREMENTS OF THE ADOPTING SEWERAGE/ WATER AUTHORITY.
- THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE UTILITY COMPANIES.
- THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
- ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- ALL EXISTING DRAINAGE LOCATIONS AND LEVELS ARE TO BE CONFIRMED BY THE CONTRACTOR AND THE ENGINEER NOTIFIER BEFORE ANY DRAIN RUNS ARE CONSTRUCTED.
- THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD ANY EXISTING LIVE DRAINAGE BE FOUND WITHIN THE SITE BOUNDARY SERVING ADJACENT PROPERTIES.
- ALL EXISTING DRAINAGE WITHIN THE SITE NOT REQUIRED FOR THE NEW DEVELOPMENT SHALL BE ABANDONED. CRANKS AND SEWERS LESS THAN 1.500m DEEP WHICH ARE IN OPEN GROUND SHOULD BE ABANDONED AND BE FULLY REMOVED. ALL OTHER PIPES SHOULD BE SEALED AT BOTH ENDS AND AT ANY POINT OF CONNECTION AND BE GROUT FILL TO PREVENT SURFACE WATER CANNOT GAIN ACCESS. LARGER PIPES 2250 OR ABOVE SHOULD BE GROUT FILL TO PREVENT SURFACE OR DAMAGE TO BUILDINGS OR SERVICES IN THE EVENT OF COLLAPSE.
- ALL MANHOLE/CHAMBER COVER LEVELS ARE APPROPRIATE AND SHALL BE ADJUSTED ON SITE TO SUIT THE PROPOSED FINISHED LEVELS.
- ALL PIPE CONNECTION FROM DRAINAGE CHANNELS AND GULLIES SHALL BE 1500 PIPES AT A MINIMUM GRADIENT OF 1:100 WITH CLASS 2 BEDDING UNDO, ON THE DRAWING.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN PUBLIC HIGHWAY AND ON THE SEWERAGE SYSTEM.
- THE CONTRACTOR SHALL ALLOW FOR OBTAINING ALL APPROVALS FROM THE RELEVANT AUTHORITIES WHEN WORKING IN THE PUBLIC HIGHWAY AND ON THE SEWERAGE SYSTEM.
- THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM WORKING AREAS.
- ALL PIPES SHALL BE LAD WITH LEVEL SLOTTES AND ALL MANHOLE/SECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUT GOING PIPE (UNLESS OTHERWISE INDICATED IN THE DRAWING). PIPE RUNS SHALL BE LAD TO THE INVERT LEVELS AS DETAILED ON THE CONTRACT DRAWINGS. (NOTE THAT ALL PIPE GRADIENTS INDICATED ON THE DRAWINGS ARE APPROXIMATE).
- ALL RAINWATER PIPES AND INTERNAL FLOOD DRAIN CONNECTIONS POINTS ARE TO BE SIZED & POSITIONED AS SHOWN ON THE ARCHITECTS DRAWINGS. THE CONTRACTOR SHALL SUPPLY SUITABLE ADAPTORS AT PROPOSED GROUND LEVELS OR FINISHED FLOOR LEVEL TO ALLOW CONNECTION OF THE ABOVE GROUND DRAINAGE SYSTEM (DETAILS OF THE ABOVE GROUND DRAINAGE SYSTEM AND ADAPTORS ALL BY OTHERS).
- UPON COMPLETION OF THE DRAINAGE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAIN RUNS BY JETTING AND REMOVE ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE PUBLIC SEWER AND/OR WATERCOURSE SYSTEM. ONCE THE DRAINAGE SYSTEM HAS BEEN FULLY CLEANED OUT A CITY CHAMBER CONDITION SURVEY SHALL BE UNDERTAKEN TO ALL CONSTRUCTED DRAINAGE AND SEWER PIPES WITH THE ATTENTION OF THE ENGINEER FOR REVIEW. THE AS BUILT INVERT AND COVER LEVELS SHALL BE RECORDED BY THE CONTRACTOR AND PASSED ON TO THE ENGINEER FOR REVIEW.

**NOTE:**  
NO PLASTIC DRAINAGE TO BE USED. NO GULLY LEADS TO BE LESS THAN 1500.

**NOTE:**  
ALL IROKWORK TO BE MINIMUM CLASS D400 AND 1500mm DEEP FRAMES.

**NOTE:**  
ALL FILTER DRAINS TO BE 1500 UNO ON THE DRAWING.

**NOTE:**  
FOR HIGHWAYS ATTENUATION POND TYPICAL SECTION AND CONSTRUCTION DETAILS PLEASE REFER TO DRAWING: 4652-2-JPG-SW-00-DR-D-1614

|     |                                                                                             |          |     |
|-----|---------------------------------------------------------------------------------------------|----------|-----|
| P12 | ROAD GULLY MOVED FROM BUS STOPPING AREA                                                     | 03/08/20 | JAC |
| P11 | PH2000, HWMH-015, HWMH-016 & HWMH-017 UPDATED.                                              | 30/07/20 | JAC |
| P10 | PH1-01 & PH1-015 IS INCREASED FROM 3000 TO 3750                                             | 22/07/20 | JAC |
| P09 | DRAINAGE UPDATED TO SUIT REVED SW VERTICAL ALIGNMENT.                                       | 15/07/20 | JAC |
| P08 | GENERAL UPDATE.                                                                             | 04/06/20 | JAC |
| P07 | FILTER DRAIN MANHOLE REFERENCES AND SCHEDULE ADDED.                                         | 15/05/20 | JAC |
| P06 | ADDITIONAL NOTES ADDED. VIEWPORT EXTENDS INCREASED. REVISIONS CLOUDED.                      | 12/05/20 | RVR |
| P05 | REVISIONS CLOUDED.                                                                          | 04/05/20 | RVR |
| P04 | FILTER DRAIN DETAILS / LENGTH AND SIZE PROVIDED.                                            | 24/04/20 | RVR |
| P03 | POND LAYOUT UPDATED TO SUIT PLANNING BOUNDARY. FILTER DRAIN ADDED TO BOTTOM OF SUBMITTANCE. | 18/04/20 | RVR |
| P02 | DRAINAGE TAILS TO FUTURE PLOTS ADDED. ADDITION GULLIES ADDED.                               | 12/03/20 | JH  |
| P01 | FIRST ISSUE.                                                                                | 28/02/20 | LSG |

| REV           | DESCRIPTION                      | DATE | BY |
|---------------|----------------------------------|------|----|
| Project       | ROCKINGHAM PHASE 2A & 2B HOYLAND |      |    |
| Drawing Title | SECTION 38 DRAINAGE LAYOUT       |      |    |
| Architect     | THE HARRIS PARTNERSHIP           |      |    |

**JPG**  
www.jpg.group  
Leeds London Birmingham 0113 263 1155

|                 |             |          |         |       |
|-----------------|-------------|----------|---------|-------|
| JPG Project Ref | Scale of A0 | Date     | Checked | Drawn |
| 4652-2          | 1:500       | 28/02/20 | RVR     | LSG   |

4652-2-JPG-SW-00-DR-D-1400 S2 P12