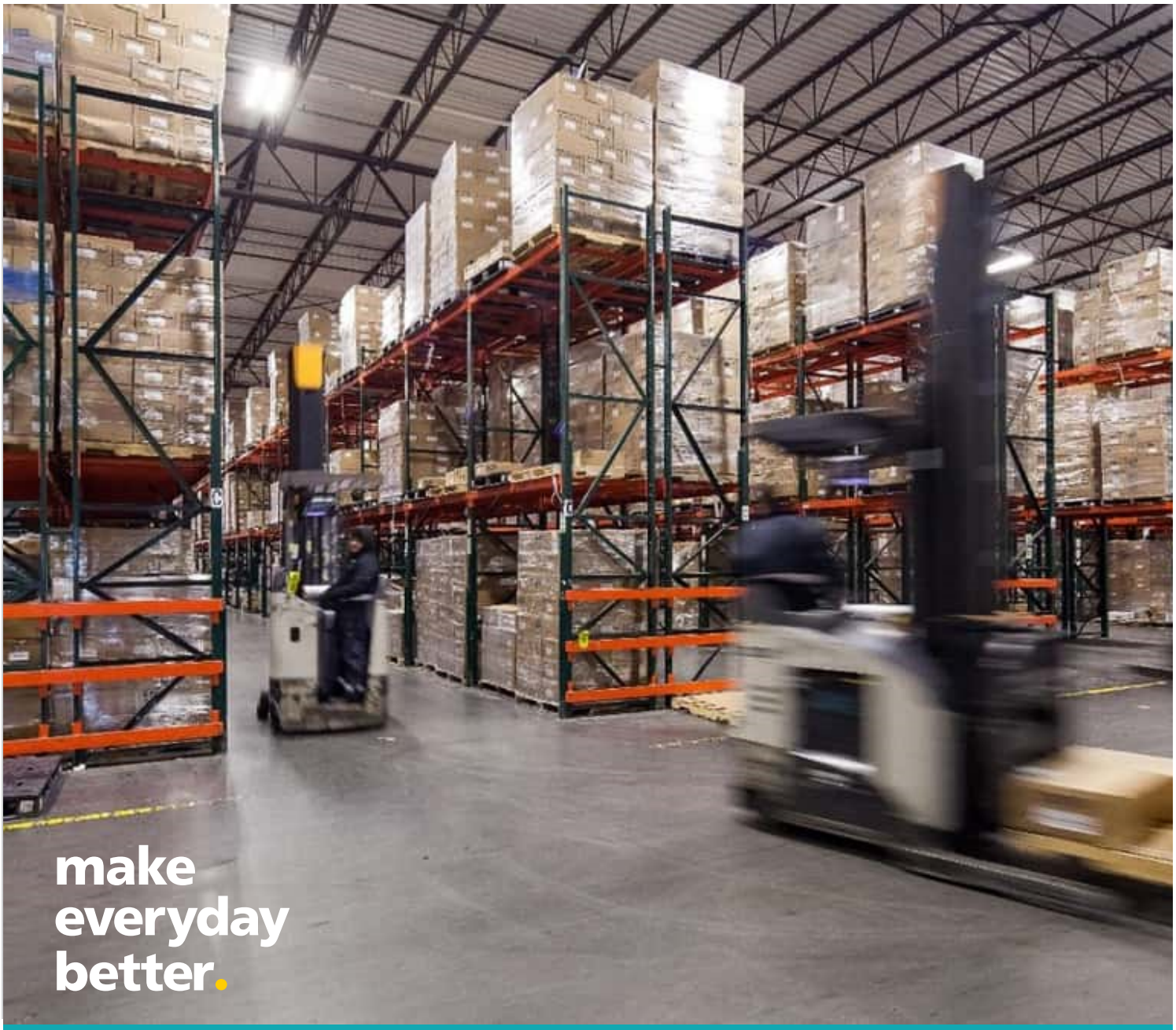
Sensitivity: General

Stormwater Management Plan – Prospect South Expansion

Prepared for Americold Logistics Ltd
Prepared by Beca Pty Ltd
ABN: 85 004 974 341

1 May 2022



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Revision History

Revision Nº	Prepared By	Description	Date
A	Mingxin Zheng	Issue For EIS	31 May 2022

Document Acceptance

Action	Name	Signed	Date
Prepared by	Mingxin Zheng		31 May 2022
Reviewed by	Ben Strang		31 May 2022
Approved by	Peta Brunel		31 May 2022
on behalf of	Beca Pty Ltd		

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1 Project Description

1.1 Introduction

Americold Logistics Ltd (Americold) currently operates an existing two-building cold storage facility at 554-562 Reservoir Road, Prospect NSW 2148. To accommodate future customer needs, Americold is intending to expand the facility and provide additional storage area, loading docks, supporting facilities and extra parking spaces. To enable this development, Americold is submitting a State Significant Development Application (SSDA) including an Environmental Impact Statement (EIS) to the Department of Planning, Industry and Environment (DPIE) for approval.

Beca Pty Ltd (Beca) has been engaged to develop a Stormwater Management Plan as part of the required documentation to address the soil and stormwater related Secretary Environmental Assessment Requirements (SEARs).

1.2 Purpose of this Report

This report includes the following items:

- Design requirements and approaches for site drainage management
- Detailed plans and a description of the integration of the proposed and existing surface and stormwater management system, including on-site detention, designed in accordance with Water Sensitive Urban Design principles
- Details of proposed erosion and sediment controls during construction

1.3 Existing Site Condition

The development site at 554-562 Reservoir Road, Prospect NSW 2148 and within Cumberland City Council extent. The site is accessed from Reservoir Road and mainly surrounded by other industrial buildings. There are currently two main industrial buildings within the site with circulation roadways at the northern side, southern side and between the two buildings. Girraween Creek is located to the south-east side to the site.

Figure 1-1 Locality Plan (Source: NEARMAP, 2022 Imagery)

1.3.1 Existing Site Topography

A detailed survey was undertaken by LandPartners built environment consultants on 11/06/2020. The survey drawings (SY074943.000.3, Rev 1) show existing building outlines, site contours, indicative lighting and indicative existing utilities.

The overall site is falling from the from the north-west (Reservoir Road) to south-east side (Girraween Creek). The slope ranges from the entry driveway of about 8% slope with the rest the site averaging to 5%.

The total site area is 6.566ha. From an estimation, the existing impervious area is 4.013ha which is about 61% of the whole site, while the existing pervious area is 2.553ha which is about 39%.

1.3.2 Existing Stormwater Infrastructure

There is an existing drainage pit and pipe network within the site that captures roof stormwater and overland runoff. The survey drawings (SY074943.000.3, Rev 1) provided by LandPartners have shown indicative pit locations, cover levels and invert levels. The actual pits and pipes network structure (pit linkages) and roof drainage connections have not been provided and have been desduced by site visit and logical assumptions. Based on the survey drawings (SY074943.000.3, Rev 1), it is assumed that there are two discharge outlets at the rear of the site to discharge stormwater to Girraween Creek. The two discharge outlets are as shown in Figure 1-1Figure 1-2.

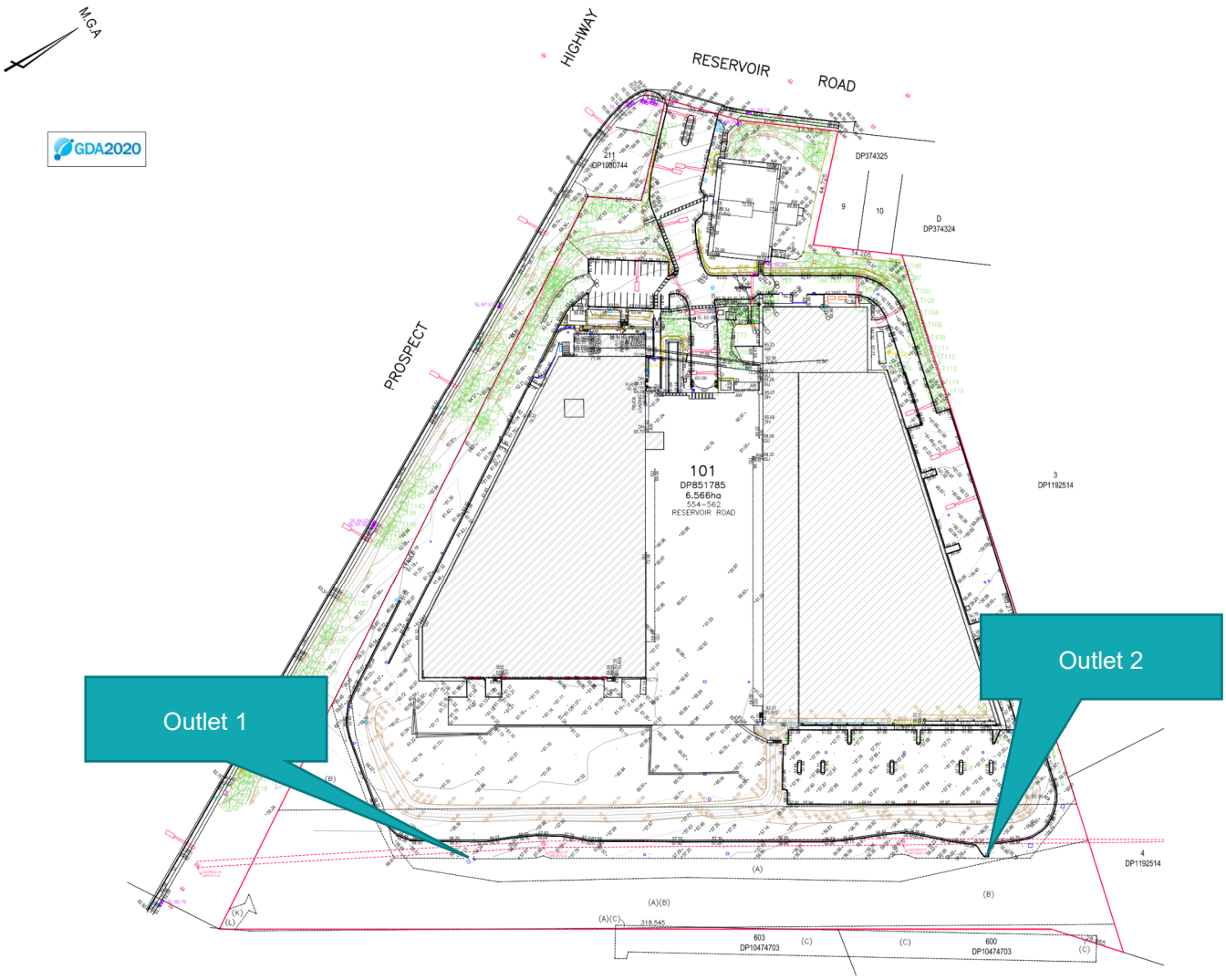


Figure 1-2 Survey plan (Source: LandPartners, 2020)

1.4 Proposed Development

The latest architectural drawing set (2527456-DA-0101 to 8101, Rev A) includes the following:

- A new freezer store building adjacent to the southern warehouse, with attached annex
- A hardstand extension for pallet storage adjacent to the northern warehouse
- A new plastic-pallets building at the existing car park adjacent to the access driveway
- Ancillary buildings including back of house and plant rooms
- A new ramp and circulation route on the south-eastern boundary of the site to accommodate truck access
- A new passenger vehicle entrance for staff, separated from the heavy vehicle access driveway
- A new car park in the eastern corner of the site

From an analysis of site areas, the changes to the impervious and pervious percentages of the site are as per Table 1-1:

Table 1-1 Changes to impervious and pervious areas

	Pre-development		Post-development		Changes	
Impervious area	4.013ha	61%	5.005ha	76%	+0.992 ha	+15%
Pervious area	2.553ha	39%	1.561ha	24%	-0.992ha	-15%
Total site area	6.566ha					

2 Stormwater Management

2.1 Design Criteria

2.1.1 Stormwater Requirement and Standards

A Concept Stormwater Drainage Plan has been prepared for the proposed industrial extension development. The stormwater management plan was designed to compy with the following requirements:

- AS 3500.3 National Plumbing, 2018
- Australian Rainfall and Runoff (AR&R), 2016
- Cumberland City Council, Development Control Plan (DCP), 2021
- Upper Parramatta River Catchment Trust On-site Stormwater Detention Handbook, 2005
- Urban Stormwater Quality Planning Guideline, 2010
- Best Practice Erosion & Sediment Control – for building and construction sites, 2008

2.1.2 Stormwater Drainage System Design Criteria

The stormwater system shall be designed and constructed based on the following;

- According to Development Control Plan (DCP) 2021 from Cumberland City Council,
    - Minor storm to be designed to 5% Annual Exceedance Probability (AEP) storm event, which will be drained to an underground system.
    - Major storm to be designed to 1% AEP storm event, which will be conveyed as overland flow.
- The existing stormwater discharge outlets will be retained. The new drainage network is designed to connect to the existing northern discharge outlet (outlet 2 in Figure 1-2).
- The design is to adopt Water Sensitive Urban Design (WSUD) principles.
- On site detention to meet the requirements of the Upper Parramatta River Catchment Trust On-site Stormwater Detention Handbook shall be provided.
- Materials shall have an approved watermark or Australian Standards stamp thereon. Pipe Classes shall be clearly stamped on all pipes.
- Minimum grade to be 0.5% fall.

- All stormwater pit grate and frames shall be class 'D' heavy duty trafficable types. All other pits to be minimum class 'B'.
- If any upgrade works are required within the endeavour easement, all infrastructure to be non-conductive in accordance with Endeavour Energy requirements.

2.2 On-Site Detention (OSD) Design

As the development site is within Upper Parramatta River Catchment as shown in Figure 2-1, an On-Site Dention (OSD) is required to be provided to limit the discharge flow leaving the property to a pre-developed flow for storms up to the 1% AEP event. Due to the relatively steep slope of the site, instead of providing an above ground OSD system, an underground tank is more feasible for the development site and proposed layout. Therefore, an underground OSD tank has been designed in accordance with Upper Parramatta River Catchment Trust On-site Stormwater Detention Handbook, 2005.

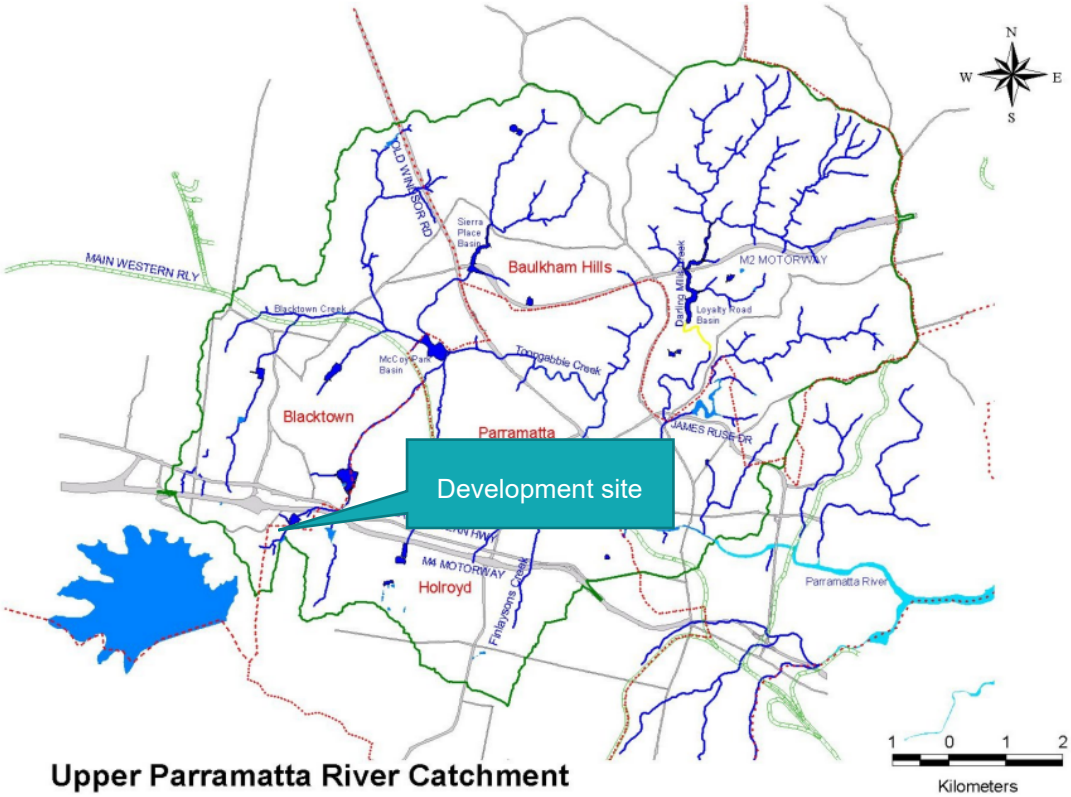


Figure 2-1 Upper Parramatta River Catchment Map (Source: Upper Parramatta River Catchment Trust On-Site Detention Handbook, 2005)

2.2.1 Hydrologic and Hydraulic Modelling

DRAINS modelling was used to design and calculate the volume of OSD tank. The modelling approach is consistent with the latest (2016) Australian Rainfall and Runoff guidelines.

a. Rainfall Data

The rainfall data utilised in this assessment is the 2016 Intensity Frequency Duration (IFD) sourced from the Bureau of Meteorology for the site. The temporal patterns were obtained from the Australian Rainfall and Runoff (ARR) Data Hub.

b. Hydrologic Methodology

ILSAX method has been used for the analysis of stormwater runoff. The adopted loss parameters are summarised in Figure 2-1.

Table 2-1 Hydrological loss parameters

Parameter	
Impervious area depression storage	1mm
Pervious area depression storage	5mm
Soil type antecedent condition and infiltration rates	3 (assumed)

2.2.2 On-Site Detention (OSD) Detail

As per section 3.4.3 in Upper Parramatta River Catchment Trust On-site Stormwater Detention Handbook, '*on an already-developed property, the OSD requirements apply only to the area of the new development, provided runoff from previously developed areas can be excluded from the OSD storage*'. Therefore, the roof of the new freezer building, the eastern new car parking area, northern new car parking area and semi-trailer parking spaces will be diverted to the OSD tank while the eastern circulation road and eastern manueving area will bypass the OSD.

From an analysis using DRAINS, a proposed OSD tank with volume of 400m^3 with orifice plate control has been designed within the semi-trailer parking area. The OSD parameters are as shown in Table 2-2.

Table 2-2 OSD parameter

OSD Parameters	
Dimension	48m (Length) x 8m (Width) x 1.2m (Deep)
Top Water Level (TWL) at 1% AEP	RL 55.5
Orifice Diameter	170mm

By providing the OSD tank, the discharge rates of the development site are as shown in Table 2-3:

Table 2-3 Discharge rate of development site

	Pre-development	Post-development
1% AEP	3160L/s	3036L/s
5% AEP	2430L/s	2237L/s
20% AEP	1640L/s	1514L/s
50% AEP	105L/s	102L/s

Approximate location of the OSD tank has been shown on the Stormwater Drainage Plans in Appendix B.

2.3 Site Drainage System

The existing stormwater drainage system of the undeveloped area will be retained. The new stormwater drainage system within the site has been designed to service both major and minor events.

The stormwater runoff from the new southern access road will be captured by inlet pits then conveyed to the northern outlet point. The stormwater runoff from northern car parking and semi-trailer parking will be also discharged to the existing northern outlet via the piped system.

The connection of roof drainage for the new freezer building and other structures has been allowed for in the capacity of the underground drainage system. The roof drainage of the new staff outdoor seating area and the drainage of new PWD carpark will be connected to the nearest existing stormwater pit.

The concept drainage network is as shown on the Stormwater Drainage Plans in Appendix A.

2.4 Water Sensitive Urban Design (WSUD)

According to Section 2.5 in Cumberland City Council Development Control Plan Part G – Miscellaneous Development Control, in order to protect and enhance natural water system, the development site is required to implement water sensitive urban design.

Error! Reference source not found. Table 2-4 has shown the pollutant reduction requirements for all developments.

Table 2-4 Stormwater Quality Targets

Pollutant	Litter	Reduction in Load
Litter e.g. cans, bottles, wrapping materials, food scraps	All anthropogenic materials with a minimum dimension >5mm	90%
Coarse sediment	Coarse sand and soil particles (<0.5mm diameter)	85%
Nutrients	Total phosphorous nitrogen	60%
Fine particles	Coarse sand and soil particles (<0.05mm diameter)	85%
Cooking oil and grease	Free floating oils that do not emulsify aqueous solutions	90%
Hydrocarbons inc. motor fuels, oils and greases	Anthropogenic hydrocarbons that can be emulsified	90%

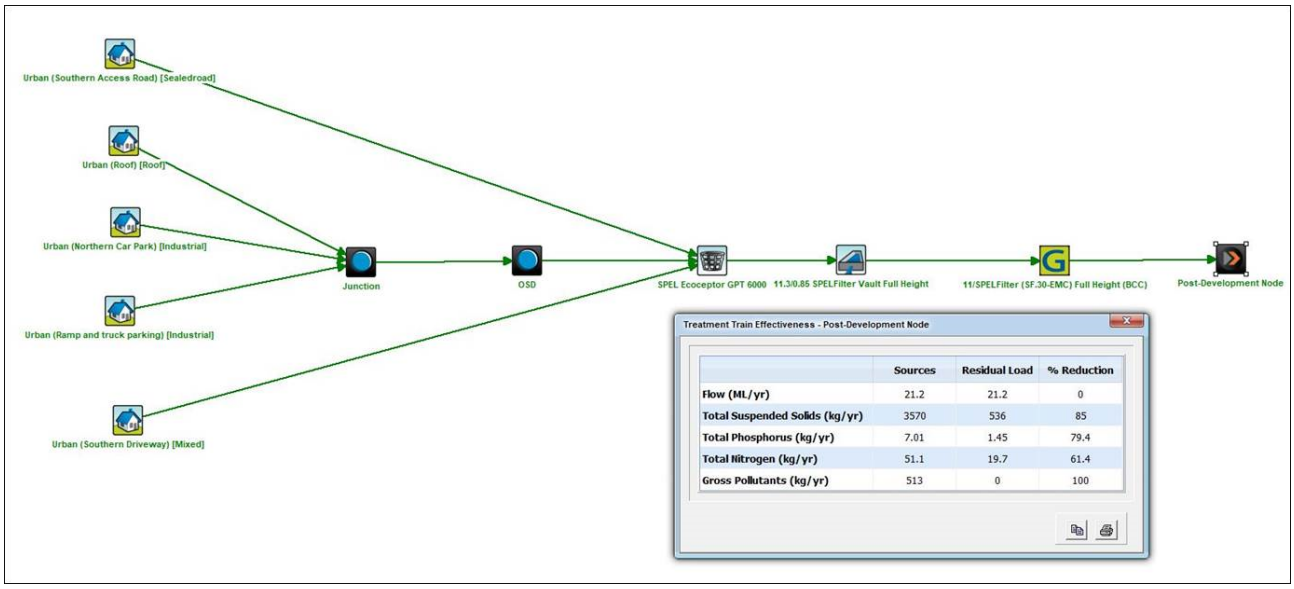
2.4.1 WSUD Methodology

To estimate the effectiveness of the proposed treatment elements on the water quality of the post-developed site, MUSIC (v. 6.3) modelling has been utilised. The MUSIC model has only assessed the development area within the site. The non-development area is excluded from the modelling.

2.4.2 WSUD Results

It is proposed that the littler and fine particles from the new access road and parking area will be collected by primary gross pollutant traps (GPT), which will be a SPEL Ecoceptor or equivalent, while hydrocarbons and nutrients will be removed by secondary and or tertiary filter treatments, such as a SPEL Filter or equivalent. All proposed water quality products will be installed before the discharge outlet.

The layout and results of the MUSIC modelling are as shown in Figure 2-2.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	21.2	21.2	0
Total Suspended Solids (kg/yr)	3570	536	85
Total Phosphorus (kg/yr)	7.01	1.45	79.4
Total Nitrogen (kg/yr)	51.1	19.7	61.4
Gross Pollutants (kg/yr)	513	0	100

Figure 2-2 MUSIC model layout and results

From the Treatment Train Effectiveness result above, the suspended solids, fine particles and nutrients have met the water quality requirement. As the MUSIC model is not able to evaluate the reduction of hydrocarbons at this stage, Beca has consulted with SPEL Stormwater, who is the manufacture of SPEL Ecoceptor. It has been confirmed that SPEL Ecoceptor has the ability to reduce 93% of hydrocarbons, thus addressing the criteria.

2.5 Erosion and Sediment Control

An erosion and sediment control plan has been developed to manage erosion and sediment during construction of the development site. This shall be in accordance with the standards outlined in *Best Practice Erosion & Sediment Control – for building and construction sites, 2008*. The key measures are:

- Sediment fences are to be installed along or adjacent to the downslope boundary of the site. Sediment fences shall be constructed from an approved geotextile filter fabric to capture the sediment from stormwater runoff. Contractors are required to remove excessive sediment building up behind the fence regularly in order to for the fence to stay effective.
- Sandbag sediment traps are provided at the interface of development area and non-development area.
- Sediment basin is to be provided at the downstream limit of the site.
- All new pits and existing pits are protected by silt traps
- Stockpiles to be protected with appropriate sediment & erosion control measures. Clean run-off from upstream is to be diverted around disturbed areas.

A concept Erosion and Sediment Control is attached in Appendix B.

3 Conclusion

The Stormwater Management Plan for the extension development proposed by Americold Logistics has been completed. The key outcomes are:

- An OSD tank is designed to limit the discharge flow leaving the property to a pre-developed flow for storms up to the 1% AEP event will be provided.
- A new pit and pipe system with sufficient capacity to collect and convey runoff from the development area in 5% AEP storm events will be provided.
- The overland flow paths have the capacity to safely convey the 1% AEP flows that exceed the capacity of the minor system around the proposed buildings in such a manner that does not encroach on adjacent properties.
- A MUSIC model has been developed to ensure that water quality meets the pollutant reduction requirement set by Cumberland City Council.
- A concept Eorsion and Sediment Control plan has been developed to describe the control measures during construction stages.

A

Appendix A – Stormwater Drainage Plans

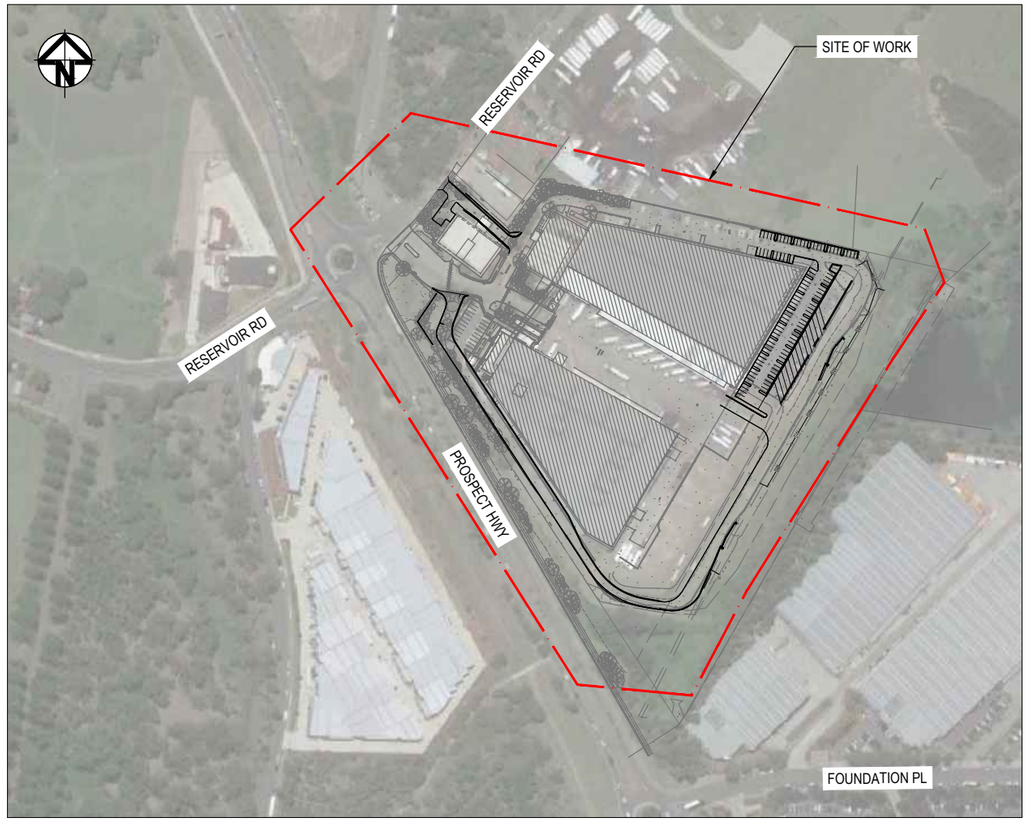
Drawing Plotted:

PROSPECT SOUTH EXPANSION

CIVIL WORKS

560 RESERVOIR ROAD

PROSPECT NSW 2148



DRAWING LIST		
DRAWING NUMBER	DRAWING TITLE	REVISION
2527456-DWG-CA-0101	COVER SHEET AND DRAWING LIST	A
2527456-DWG-CA-0102	GENERAL NOTES	A
2527456-DWG-CA-0111	EROSION AND SEDIMENT CONTROL	A
2527456-DWG-CA-0301	CUT AND FILL DEPTH PLAN	A
2527456-DWG-CA-0501	ROAD & PAVEMENT PLAN - SHEET 1	A
2527456-DWG-CA-0502	ROAD & PAVEMENT PLAN - SHEET 2	A
2527456-DWG-CA-0503	ROAD & PAVEMENT PLAN - SHEET 3	A
2527456-DWG-CA-0504	ROAD & PAVEMENT PLAN - SHEET 4	A
2527456-DWG-CA-0701	DRAINAGE PLAN - SHEET 1	A
2527456-DWG-CA-0702	DRAINAGE PLAN - SHEET 2	A
2527456-DWG-CA-0703	DRAINAGE PLAN - SHEET 3	A
2527456-DWG-CA-0704	DRAINAGE PLAN - SHEET 4	A
2527456-DWG-CA-0801	CIVIL AND DRAINAGE DETAILS	A
2527456-DWG-CA-0901	OSD PLAN AND DETAILS	A
2527456-DWG-CA-1001	VEHICLE TRACKING SHEET 1	A
2527456-DWG-CA-1002	VEHICLE TRACKING SHEET 2	A
2527456-DWG-CA-1003	VEHICLE TRACKING SHEET 3	A
2527456-DWG-CA-1004	VEHICLE TRACKING SHEET 4	A

PRELIMINARY
NOT FOR CONSTRUCTION

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	Drawn	C.LAWRENCE	02.05.22
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	02.05.22
	Drg Check	B.STRANG	02.05.22

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

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Discipline: CIVIL

Drawing No.: 2527456-CA-0101

Rev.: A

Document No.

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GENERAL NOTES

1. ORIGIN OF LEVELS :- AUSTRALIAN HEIGHT DATUM (A.H.D.)
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK.
3. ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS, THE SPECIFICATIONS AND THE DIRECTIONS OF THE SUPERINTENDENT.
4. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
5. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
6. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
7. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER COMMUNICATIONS, ELECTRICAL AND GAS SERVICES. HAND EXCAVATE IN THESE AREAS.
8. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH AN APPROVED NON-NATURAL GRANULAR MATERIAL AND COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS.1289.
9. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL UNLESS NOTES OTHERWISE.
10. ON COMPLETION OF PIPE INSTALLATION ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS.
11. PROVIDE 12mm WIDE EXPANDING CORK JOINTS BETWEEN CONCRETE PAVEMENTS AND ALL BUILDINGS, WALLS, FOOTINGS, COLUMNS, KERBS, DISH DRAINS, GRATED DRAINS, BOLLARD FOOTINGS ETC UNLESS NOTED OTHERWISE.
12. CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS.
13. ALL BATTERS TO BE GRASSED LINED WITH MINIMUM 100 TOPSOIL AND APPROVED COUCH LAID AS TURF.
14. MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.
15. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY DIVERSION DRAINS AND MOUNDS TO ENSURE THAT AT ALL TIMES EXPOSED SURFACES ARE FREE DRAINING AND WHERE NECESSARY EXCAVATE SUMPS AND PROVIDE PUMPING EQUIPMENT TO DRAIN EXPOSED AREAS.
16. THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED STRUCTURAL DRAWINGS AND SPECIFICATIONS.
17. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
18. ON COMPLETION OF WORKS ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL INCLUDING, BUT NOT LIMITED TO, KERBS, FOOTPATHS, CONCRETE AREAS, GRASS AND LANDSCAPED AREAS.

UTILITY LOCATION AND CONFLICTS NOTES

1. THE INFORMATION SHOWN IS NOT INTENDED TO PROVIDE THE CONTRACTOR WITH COMPLETE AND ACCURATE INFORMATION CONCERNING THE LOCATION AND EXTENT OF EXISTING UTILITY SERVICES. THE CONTRACTOR IS TO MAKE ENQUIRIES TO THE RELEVANT SERVICE AUTHORITIES AS TO THE LOCATION, DEPTH AND EXTENT OF UTILITY SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK ON SITE.
2. THE CONTRACTOR SHALL IDENTIFY, LOCATE AND MARK ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND PROTECT AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE AND/OR ADJUST IF NECESSARY.
3. WHEN AN EXISTING UNDERGROUND SERVICE NOT PREVIOUSLY IDENTIFIED, IS FOUND DURING CONSTRUCTION, THE CONTRACTOR IS TO IMMEDIATELY ADVISE THE PRINCIPAL AND RELEVANT SERVICE AUTHORITY. ALLOW A HOLD TIME FOR THE SERVICE AUTHORITY TO WITNESS AND DOCUMENT THE UNIDENTIFIED SERVICE.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE INCURRED TO THE EXISTING SERVICES AS A RESULT OF THE EXECUTION OF THE WORK UNDER THE CONTRACT.

EXISTING SERVICES

1. ALL EXISTING SERVICES MADE REDUNDANT FROM THE WORKS AND EXISTING REDUNDANT SERVICES SHALL BE REMOVED OR SEALED OFF IN ACCORDANCE WITH THIS DRAWING, THE CONTRACT DOCUMENTS AND TO THE SATISFACTION OF LOCAL AUTHORITY TO THE UTILITY PROVIDERS DETAILS.

EROSION & SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE CARRIED OUT IN ACCORDANCE WITH THE QUDM AND THE INSTITUTION OF ENGINEERS, AUSTRALIA (QLD) "SOIL EROSION AND SEDIMENT CONTROL - ENGINEERING GUIDELINES FOR QUEENSLAND CONSTRUCTION SITES' AND IPSWICH COUNCIL PLANNING SCHEME POLICY.
2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES RELATING TO A PARTICULAR UPSTREAM CATCHMENTS PRIOR TO STRIPPING OF TOPSOIL FROM THAT CATCHMENTS. WHERE IT IS NECESSARY TO UNDERTAKE STRIPPING IN ORDER TO CONSTRUCT A SEDIMENT CONTROL DEVICE ONLY SUFFICIENT GROUND SHALL BE STRIPPED TO ALLOW CONSTRUCTION.
3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED AS INDICATED IN THE DRAWINGS. THE LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATICAL ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT.
4. CONFORMITY WITH THE EROSION AND SEDIMENT CONTROL PLAN, DRAWING NO. THE GOLD COAST CITY COUNCIL SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ANY NECESSARY CONTROL IS IN PLACE EVEN THOUGH SUCH CONTROL MAY NOT BE SHOWN ON THE PLAN.
5. THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS AND ALL EMPLOYEES OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSTREAM AREAS.
6. THE CONTRACTOR SHALL REGULARLY MAINTAIN SEDIMENT AND EROSION CONTROL STRUCTURES AND DE-SILT SUCH STRUCTURES PRIOR TO THE REDUCTION IN CAPACITY OF 30% DUE TO ACCUMULATED SILT. THE SEDIMENT SHALL BE DISPOSED OF ON SITE IN A MANNER APPROVED BY THE PRINCIPAL.
7. TOPSOIL AND SPOIL SHALL BE STOCKPILED IN NON-HAZARDOUS AREAS AND PROTECTED FROM SURFACE RUNOFF BY DIVERSION DRAINS OR SIMILAR STOCKPILES SHALL BE SURROUNDED ON DOWNSTREAM SIDES BY SILT FENCING.STOCKPILES SHALL BE SUITABLY COMPACTED TO INHIBIT EROSION. WHERE THE STOCKPILING PERIOD EXCEEDS FOUR (4) WEEKS,THE STOCKPILE SHALL BE SEEDED TO ENCOURAGE VEGETATION GROWTH.
8. TOPSOIL SHALL BE RESPREAD AND STABILISED AS SOON AS POSSIBLE. DISTURBED AREAS SHALL BE LEFT WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST KEYING IN TOPSOIL.
9. THE CONTRACTOR SHALL TEMPORARILY REHABILITATE WITHIN 40 DAYS ANY DISTURBED AREAS. WHERE FINAL SHAPING HAS OCCURRED THE CONTRACTOR SHALL PROVIDE FINAL REHABILITATION WITHIN 20 DAYS.
10. THE CONTRACTOR SHALL MAINTAIN GRASS COVER UNTIL ALL WORKS HAVE BEEN COMPLETED, INCLUDING THE MAINTENANCE PERIOD, BY FREQUENT WATERING AND MOWING WHERE REQUIRED. PLANT, MACHINERY AND VEHICLES SHALL NOT BE DRIVEN OVER GRASSED AREAS UNLESS ON AN APPROVED HAULAGE ROUTE.
11. THE CONTRACTOR SHALL PROVIDE INLET SEDIMENT TRAPS AT ALL PITS DURING CONSTRUCTION AND REPLACE WITH KERB INLET CONTROL AT COMPLETION OF LINTEL CONSTRUCTION.
12. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS QUICKLY AS POSSIBLE TO MINIMISE RISK OF EROSION.
13. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS PLUS 3 METRES WHERE NECESSARY. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
14. SITE ACCESS SHALL BE RESTRICTED TO A NOMINATED POINT. CONTRACTOR TO INSTALL VIBRATION GRID AT EXIT POINTS TO LIMIT DISPLACEMENT OF ON-SITE SILTY SOILS.

TREE REMOVAL

1. ALL TREES AND SHRUBS (UNLESS NOTED TO BE PROTECTED ON THE LANDSCAPE PLANS), RUBBLE, EXISTING PAVEMENT AND EXISTING STRUCTURES WITHIN THE SITE SHALL BE REMOVED AND REUSED OR RECYCLED WHERE POSSIBLE. WHERE NOT POSSIBLE, THIS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF AS PART OF THE CONTRACT.
2. ANY TREES WITHIN THE WORKS AREA WHICH, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, ARE UNSOUND OR WOULD CONSTITUTE A DANGER, SHALL BE CUT DOWN AND REMOVED (EXCEPT THOSE IDENTIFIED AS BEING PROTECTED). ALL STUMPS OF TREES CUT DOWN WITHIN THE BOUNDS OF THE CONSTRUCTION AREA WHICH ARE LARGER THAN 250mm IN GIRTH, SHALL BE COMPLETELY REMOVED.
3. ALL ROOTS SHALL BE REMOVED FOR A DEPTH OF 1m. CAVITIES FORMED BY THE REMOVAL OF ROOTS SHALL BE BACKFILLED AND COMPACTED.
4. AFTER CLEARING AND GRUBBING ARE COMPLETE, THE CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL FROM THE CLEARED AREA (INCLUDING AREAS THAT HAVE BEEN CLEARED AND GRUBBED). REMOVAL OF TOPSOIL FROM ANY SECTION OF THE WORKS SHALL ONLY COMMENCE AFTER SEDIMENT AND EROSION CONTROLS HAVE BEEN IMPLEMENTED.

STORMWATER

1. ALL 225 DIA. DRAINAGE PIPES AND LARGER SHALL BE CLASS "2" APPROVED SPIGOT AND SOCKET FRC PIPES WITH RUBBER RING JOINTS. (U.N.O.).
2. EQUIVALENT STRENGTH REINFORCED CONCRETE PIPES MAY BE USED.
3. ALL PIPE JUNCTIONS UP TO AND INCLUDING 450 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
4. MINIMUM GRADE TO STORMWATER LINES TO BE 0.5%. (U.N.O.)
5. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
6. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
7. PRECAST PITS SHALL NOT BE USED UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE SITE PRINCIPAL.
8. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50mm CONCRETE BED (OR 75mm THICK BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75mm THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200mm ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150mm LAYERS TO 98% STANDARD MAX. DRY DENSITY.
9. BEDDING SHALL BE (U.N.O.) TYPE H1, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
10. WHERE SUBSOIL DRAINAGE LINES PASS UNDER VEHICULAR PAVEMENTS UNSLOTTED UPVC SEWER GRADE PIPE SHALL BE USED.
11. PROVIDE 3.0m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, AT UPSTREAM END OF EACH PIT.

LINE MARKING

1. THE WORK SHALL INCLUDE ALL LINE MARKING TO ROADS, HARDSTANDS, PATHS, CAR PARKS AND THE TRAFFICABLE AREAS.
2. THE PAVEMENT MARKING AND PAINT SHALL BE IN ACCORDANCE WITH AS 1742.2 AND THE RMS DELINEATION MANUAL.
3. LINE MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.
4. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm TO 0.40mm.
5. ALL EXISTING PAVEMENT MARKING WHICH IS LOCATED ON EXISTING PAVEMENT TO BE RETAINED SHALL BE REMOVED BY GRINDING WHERE THE EXISTING MARKINGS ARE MADE REDUNDANT BY THE PROPOSED WORKS.

PAVEMENTS AND HARDSTAND

1. THE SURFACE OF ANY COMPACTED LAYER SHALL BE KEPT MOIST, IN GOOD CONDITION AND FREE FROM CONTAMINATION UNTIL ANY SUBSEQUENT PAVEMENT WORK UNDER THE CONTRACT IS COMMENCED.

CONCRETE NOTES

GENERAL

1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, AND THE ACSE CONCRETE SPECIFICATION EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. VERIFY ALL SETTING OUT DIMENSIONS WITH THE ARCHITECT AND/OR THE SURVEYOR.
3. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS.
4. IN CASE OF DOUBT - ASK.

DESIGN LOADS

1. N/A

CONCRETE

1. PLACE CONCRETE OF THE FOLLOWING CHARACTERISTIC COMPRESSIVE STRENGTH F"C AS DEFINED IN AS.3600 OR M.R. FORM 609. ADD WATER REDUCING ADMIXTURE EQUAL TO WRDA.

LOCATION	AS.3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
ALL KERB PITS ETC.	25	80	20
VEHICULAR PAVEMENTS	32	80	20

2. USE "A.C.S.E. SPECIFICATION TYPE A" CEMENT.
3. ALL CONCRETE SHALL BE SUBJECT TO PROJECT CONTROL SAMPLE AND TESTING TO AS.3600.
4. CONSOLIDATE BY VIBRATION.

REINFORCEMENT

1. FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL AS SHOWN BELOW. ON THE DRAWING N IS FOLLOWED BY A NUMERAL WHICH INDICATES THE SIZE IN MILLIMETRES. A MARK NUMERAL (IF USED) FOLLOWS THIS NUMERAL.

N. HOT ROLLED DEFORMED BAR, GRADE 410Y
S. HOT ROLLED DEFORMED BAR, GRADE 230S
R. PLAIN ROUND BAR, GRADE 230R RL.
SL.HARD DRAWN WIRE FABRIC.

CONCRETE NOTES - CONTINUED

2. PROVIDE BAR SUPPORTS OR SPACERS TO GIVE THE FOLLOWING CONCRETE COVER TO ALL REINFORCEMENT UNLESS NOTED OTHERWISE.
   FOOTINGS
   - 75 BOTTOM, 65 TOP AND SIDES SLABS
   - 2O TOP AND BOTTOM, 30 WHEN EXPOSED TO WEATHER.

   BEAMS
   - 50 BOTTOM AND SIDES (TO STIRRIPS) TOP COVER AS DETAILED COLUMNS
   - 40 TO TIES AND SPIRALS 50 WHEN EXPOSED TO WEATHER

   WALLS
   - 25 GENERALLY 30 WHEN CAST IN FORMS BUT LATER EXPOSED TO WEATHER OR GROUND.
   - 65 WHEN CAST DIRECTLY IN CONTACT WITH GROUND.

CURING

1. CURE ALL CONCRETE IN ACCORDANCE TO THE METHOD PROVIDED IN THE SPECIFICATION.

ASPHALTIC CONCRETE NOTES

1. GENERAL
   a) MINERAL AGGREGATES TO COMPLY WITH AUSTRALIAN STANDARDS
   b) MINERAL FILLER TO COMPLY WITH AS.2357 MINERAL FILLERS OR ASPHALT.
   c) BITUMEN BINDER SHALL COMPLY WITH AS 2008

2. MIX PROPORTIONS
   a) JOB MIX - 14mm NOMINAL SIZE AGGREGATE. MINIMUM BITUMEN CONTENT BY MASS OF TOTAL MASS - 5.1%
   b) MIX STABILITY - BETWEEN 16kN AND 36kN AS DETERMINED BY AS 2891
   c) AIR VOIDS IN COMPACTED MIX - BETWEEN 4% AND 7% OF THE VOLUME OF THE MIX.
   d) VOIDS FILLED IN BINDER - 65-80% OF AIR VOIDS IN THE TOTAL MINERAL AGGREGATE FILLED BY BINDER IN ACCORDANCE WITH AUSTRALIAN STANDARDS

3. PAVEMENT PREPARATION
   a) THE EXISTING SURFACE TO BE SEALED SHALL BE DRY AND BROOMED BEFORE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFICIAL FOREIGN MATTER.
   b) ALL DEPRESSIONS OR UNEVEN AREAS ARE TO BE TACK-COATED AND BROUGHT UP TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE LAYING OF MAIN COURSE.

4. TACK COAT
   a) THE WHOLE OF THE AREA TO BE SHEETED WITH ASPHALTIC CONCRETE SHALL BE LIGHTLY AND EVENLY COATED WITH RAPID SETTING BITUMEN COMPLYING WITH AUSTRALIAN STANDARDS. APPLICATION RATE FOR RESIDUAL BITUMEN SHALL BE 0.15 TO 0.30 LITRES/SQUARE METRE. APPLICATION SHALL BE BY MEANS OF A MECHANICAL SPRAYER WITH SPRAY BAR.

5. SPREADING
   a) ALL ASPHALTIC CONCRETE SHALL BE SPREAD WITH A SELF PROPELLED PAVING MACHINE.
   b) THE ASPHALTIC CONCRETE SHALL BE LAID AT A MIX TEMPERATURE AS SHOWN BELOW;

ROAD SURFACE TEMPERATURE IN SHADE (°C)	MIX TEMPERATURES (°C)
5 - 10	NOT PERMITTED
10 - 15	150
15 - 25	145
OVER 25	140

   c) ASPHALTIC CONCRETE SHALL NOT BE LAID WHEN THE ROAD SURFACE IS WET OR WHEN COLD WINDS CHILL THE MIX ADVERSELY AFFECT SPREADING AND COMPACTION.
   d) THE MINIMUM COMPACTED THICKNESS IS 30mm OVER EXISTING SEALED PAVEMENTS AND 50mm OVER NEW PAVEMENTS

6. JOINTS
   a) THE NUMBER OF JOINTS BOTH LONGITUDINAL AND TRANSVERSE SHALL BE KEPT TO A MINIMUM.
   b) THE DENSITY AND SURFACE FINISH AT JOINTS SHALL BE SIMILAR TO THOSE OF THE REMAINDER OF THE LAYER.
7. COMPACTION
   a) ALL COMPACTION SHALL BE UNDERTAKEN USING SELF PROPELLED ROLLERS.
   b) INITIAL ROLLING SHALL BE COMPLETE BEFORE THE MIX TEMPERATURE FALLS BELOW 105°C
   c) SECONDARY ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 60°C
   d) MINIMUM CHARACTERISTICS VALUE OF RELATIVE COMPACTION OF A LOT WHEN TESTED IN ACCORDANCE WITH AS2150
8. FINISHED PAVEMENT PROPERTIES
   a) FINISHED SURFACES SHALL BE SMOOTH, DENSE AND TRUE TO SHAPE AND SHALL NOT VARY MORE THAN 10mm FROM THE SPECIFIED PLAN LEVEL AT ANY POINT AND SHALL NOT DEVIATE FROM THE BOTTOM OF A 3m STRAIGHT EDGE LAID IN ANY DIRECTION BY MORE THAN 5mm.

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	Drg Check	B.STRANG	02.05.22	Date
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Client: americold.

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: GENERAL NOTES

Discipline: CIVIL

Drawing No. 2527456-CA-0102

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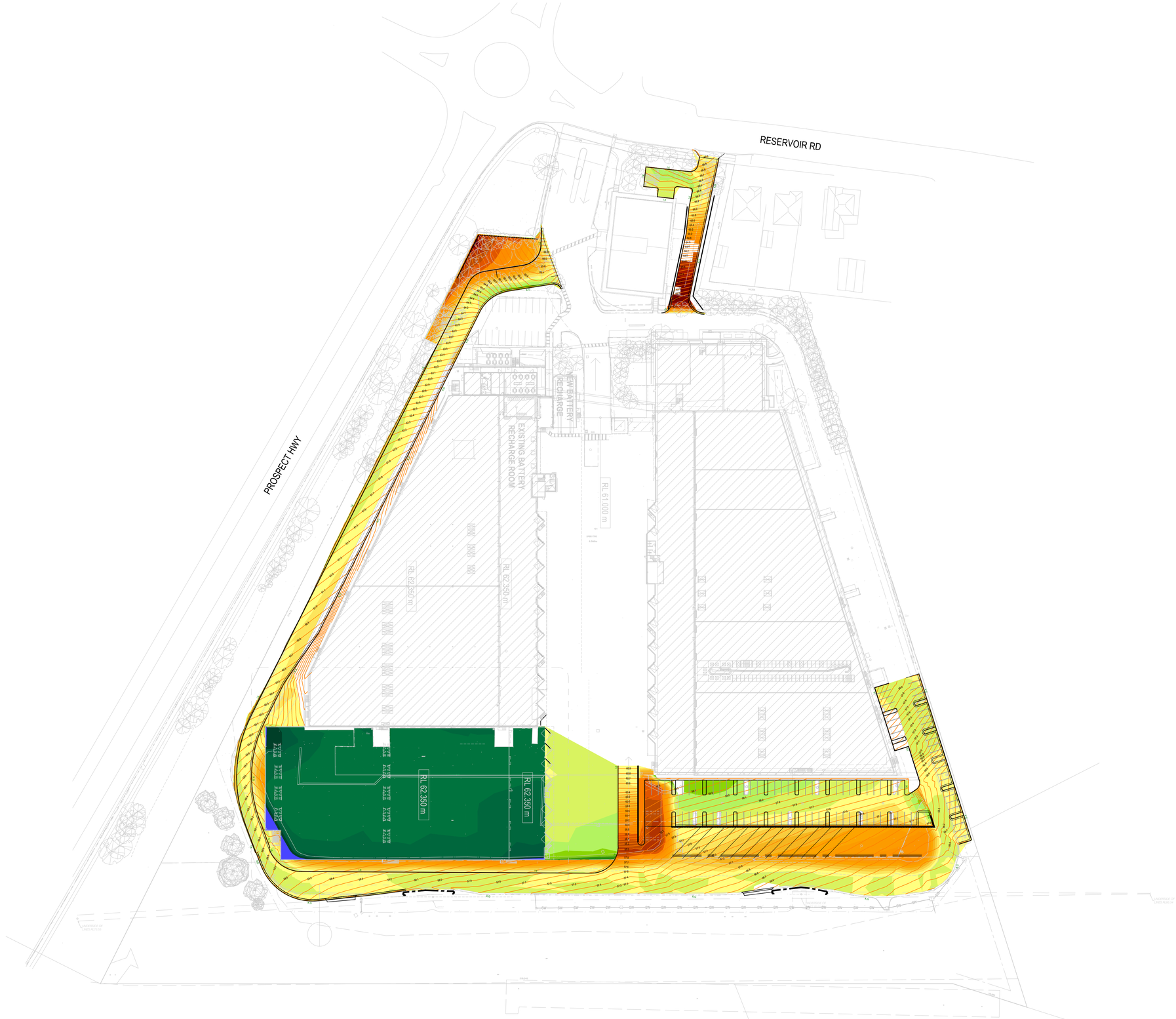

LEGEND

- CUT -4.00m+
- CUT -3.75m to -4.00m
- CUT -3.50m to -3.75m
- CUT -3.25m to -3.50m
- CUT -3.00m to -3.25m
- CUT -2.75m to -3.00m
- CUT -2.50m to -2.75m
- CUT -2.25m to -2.50m
- CUT -2.00m to -2.25m
- CUT -1.75m to -2m
- CUT -1.5m to -1.75m
- CUT -1.25m to -1.5m
- CUT -1.0m to -1.25m
- CUT -0.75m to -1.0m
- CUT -0.5m to -0.75m
- CUT -0.25m to -0.5m
- CUT -0.0m to -0.25m
- FILL 0.0m to 0.25m
- FILL 0.25m to 0.5m
- FILL 0.5m to 0.75m
- FILL 0.75m to 1.0m
- FILL 1.0m to 1.25m
- FILL 1.25m to 1.5m
- FILL 1.5m to 1.75m
- FILL 1.75m to 2.0m
- FILL 2.0m to 2.25m
- FILL 2.25m to 2.5m
- FILL 2.5m to 2.75m
- FILL 2.75m to 3.0m
- FILL 3.0m+

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Date

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: CUT AND FILL DEPTH PLAN SHEET 1 OF 1

Discipline: CIVIL

Drawing No.: 2527456-CA-0301

Beca Project Number:

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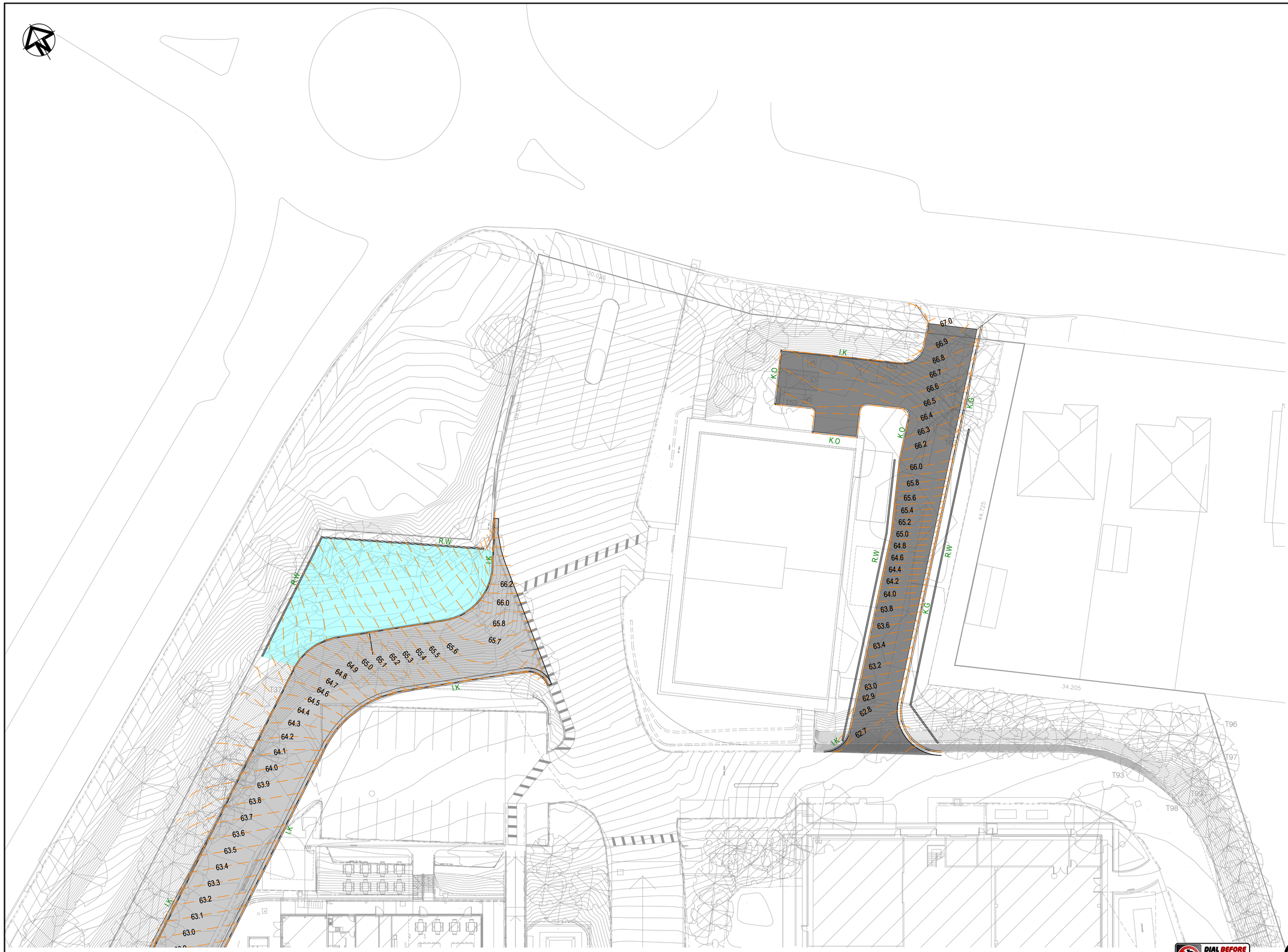


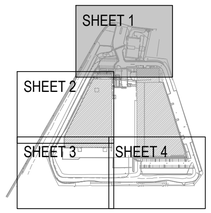
LEGEND

	EXISTING CONTOURS
	PROPOSED CONTOURS
	EASEMENT
R.W	RETAINING WALL
	CONCRETE PAVEMENT - TRAFFICABLE
	CONCRETE PAVEMENT - FOOTPATH
	ASPHALT PAVEMENT
K.G	PROPOSED KERB AND GUTTER. REFER TO CA-0801
K.O	PROPOSED KERB ONL. REFER TO CA-0801
I.K	PROPOSED INTEGRAL KERB. REFER TO CA-0801

NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION AND BUILDING LAYOUT.
2. CONTRACTOR TO CONFIRM LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK.
3. CONTRACTOR TO ALLOW FOR ALL SERVICE ADJUSTMENTS TO SUIT PROPOSED WORKS.

KEY PLAN



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	Drg Check	B.STRANG	10.05.22	Date

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: ROAD AND PAVEMENT PLAN

SHEET 1 OF 4

Discipline: CIVIL

Drawing No. / Beca Project Number: 2527456-CA-0501

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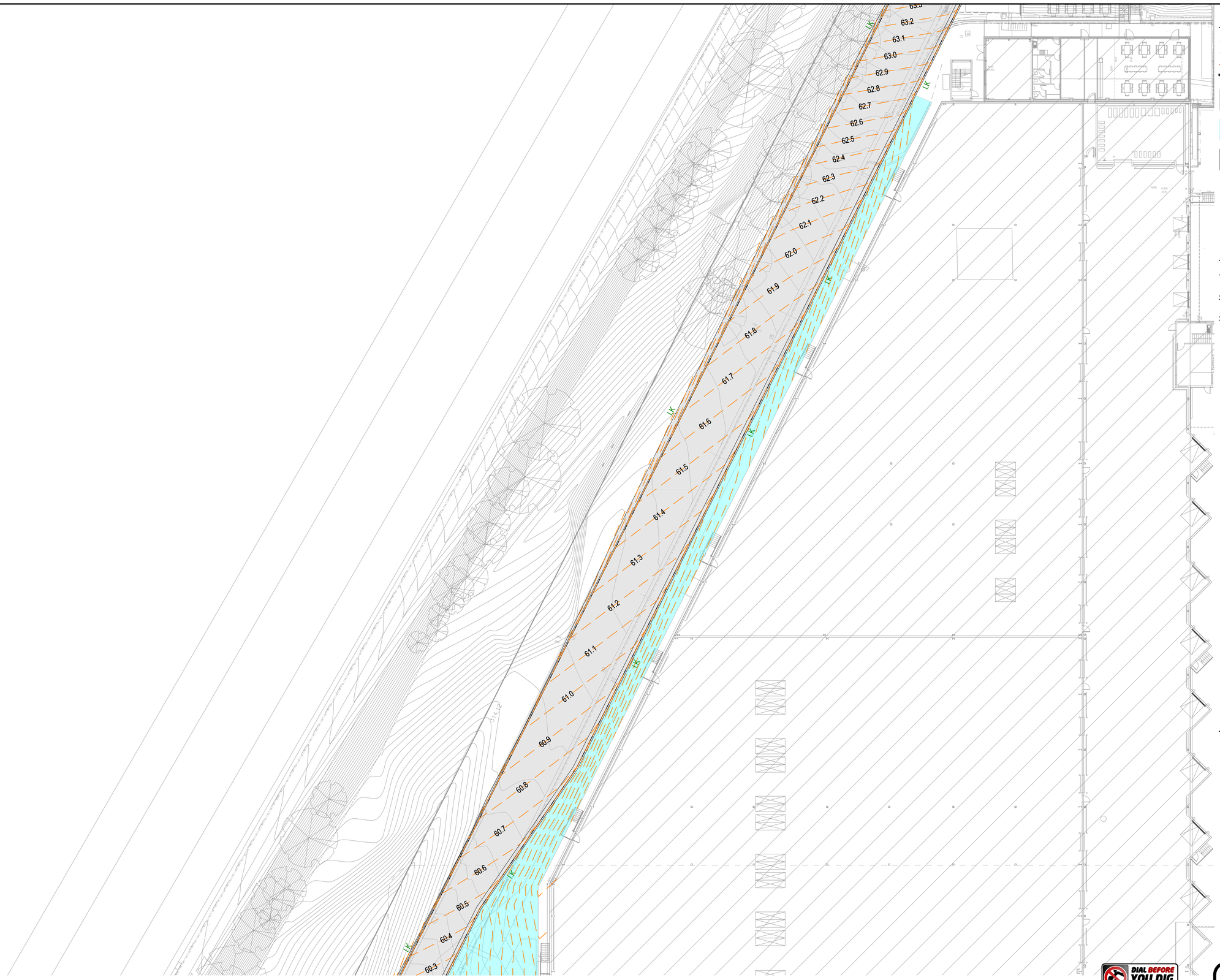

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EASEMENT
- RETAINING WALL
- CONCRETE PAVEMENT - TRAFFICABLE
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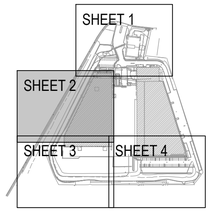

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: ROAD AND PAVEMENT PLAN

SHEET 2 OF 4

Discipline: CIVIL

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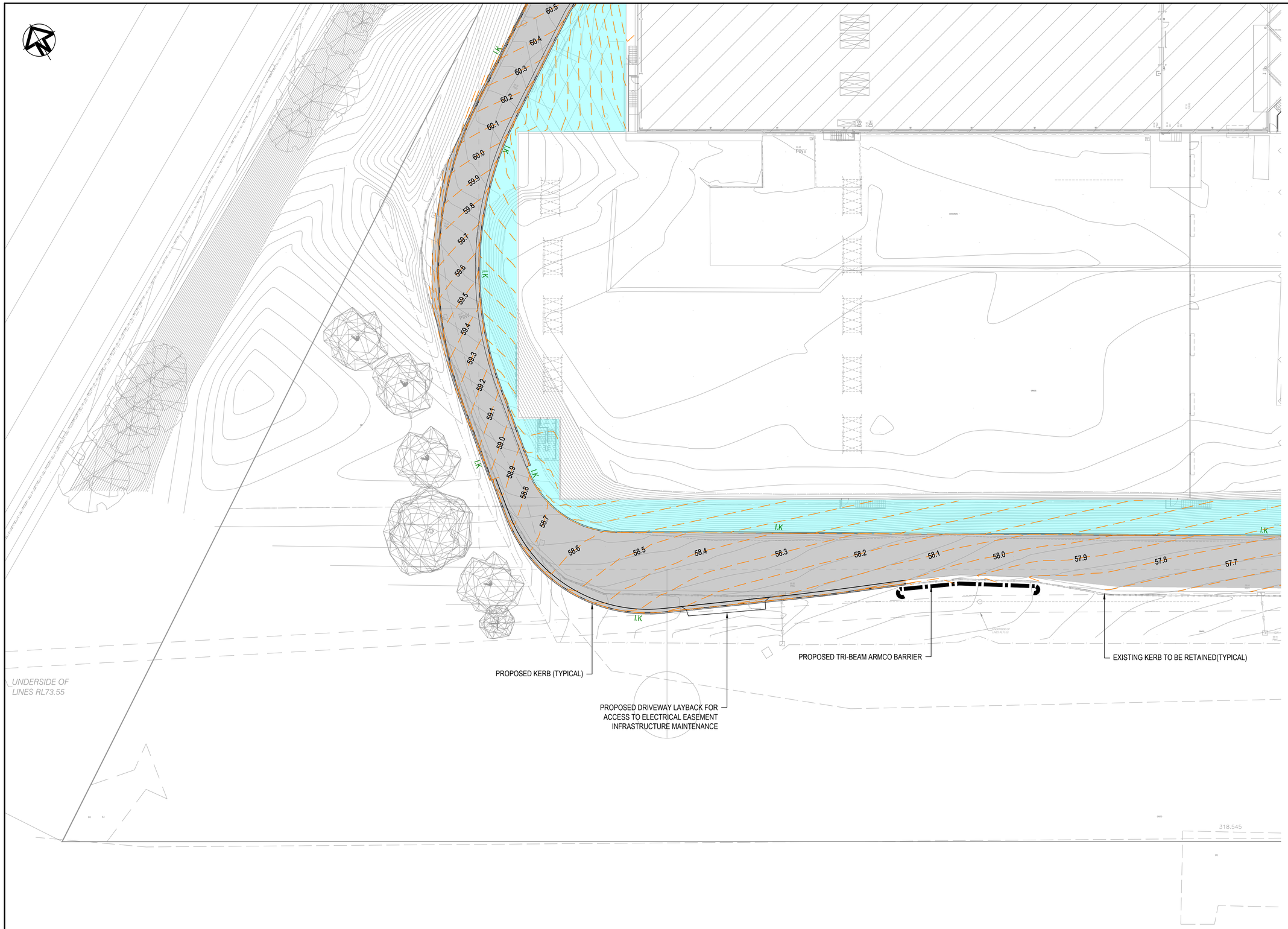

LEGEND

	EXISTING CONTOURS
	PROPOSED CONTOURS
	EASEMENT
	RETAINING WALL
	CONCRETE PAVEMENT - TRAFFICABLE
	CONCRETE PAVEMENT - FOOTPATH
	ASPHALT PAVEMENT
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I.K	PROPOSED INTEGRAL KERB. REFER TO CA-0801

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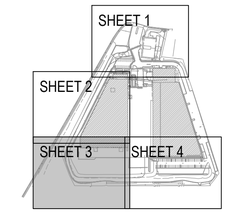
KEY PLAN



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Approved For Construction* Date

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: ROAD AND PAVEMENT PLAN

SHEET 3 OF 4

Discipline: CIVIL

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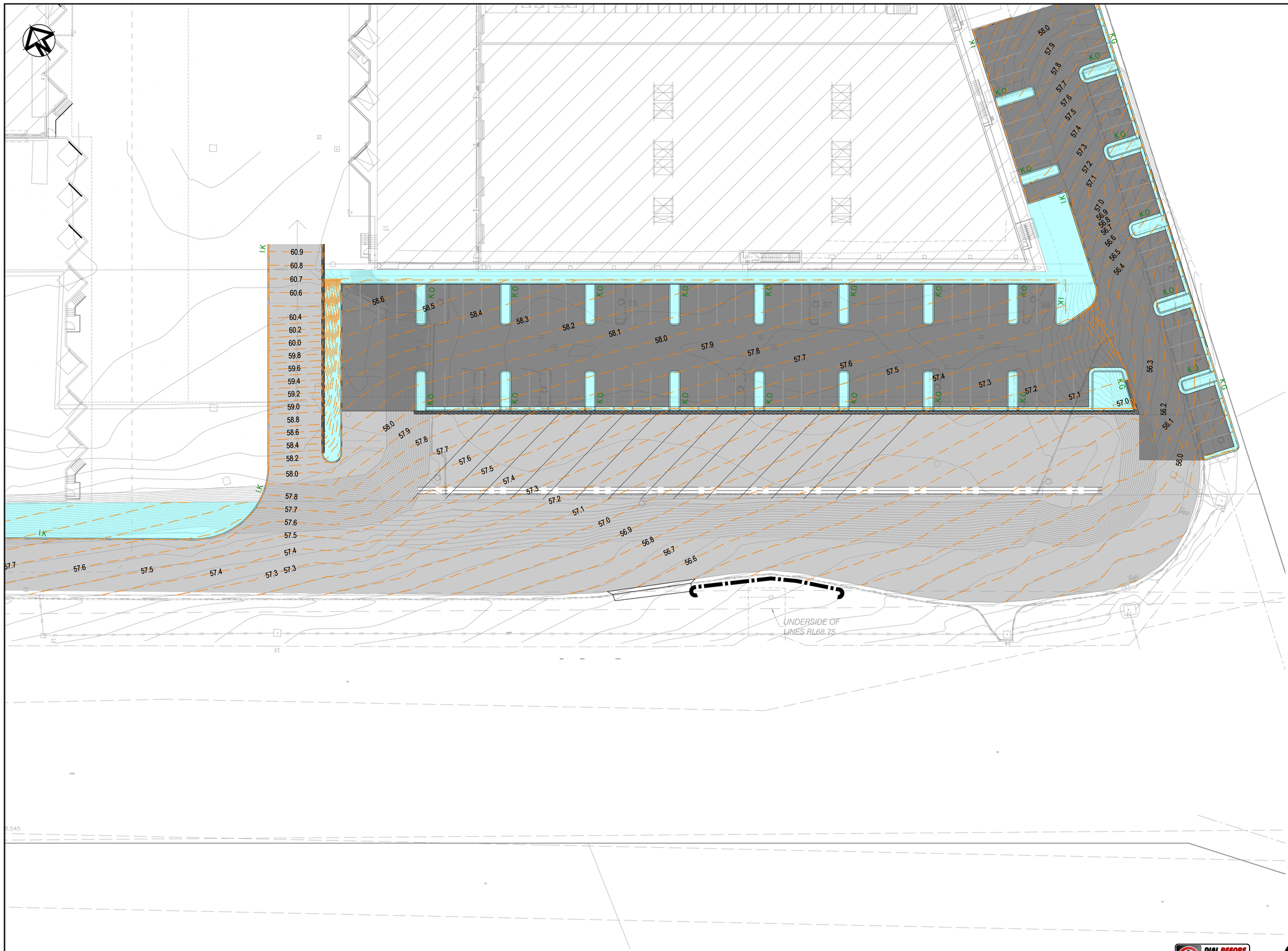

LEGEND

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- PROPOSED CONTOURS
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- PROPOSED DISH DRAIN

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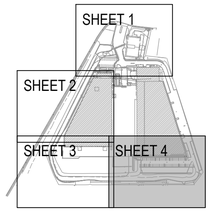

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: ROAD AND PAVEMENT PLAN

SHEET 4 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-0504

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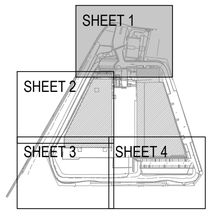
LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EASEMENT
- PROPOSED FOX DIVERSION PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED JUNCTION PIT
- PROPOSED DIRECTION OF FLOW
- PROPOSED STORMWATER PIPE
- RETAINING WALL
- PROPOSED DISH DRAIN
- PROPOSED TRENCH DRAIN
- PROPOSED GRATED DRAIN

KEY PLAN



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Approved For Construction*

Date

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Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: DRAINAGE PLAN

SHEET 1 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-0701

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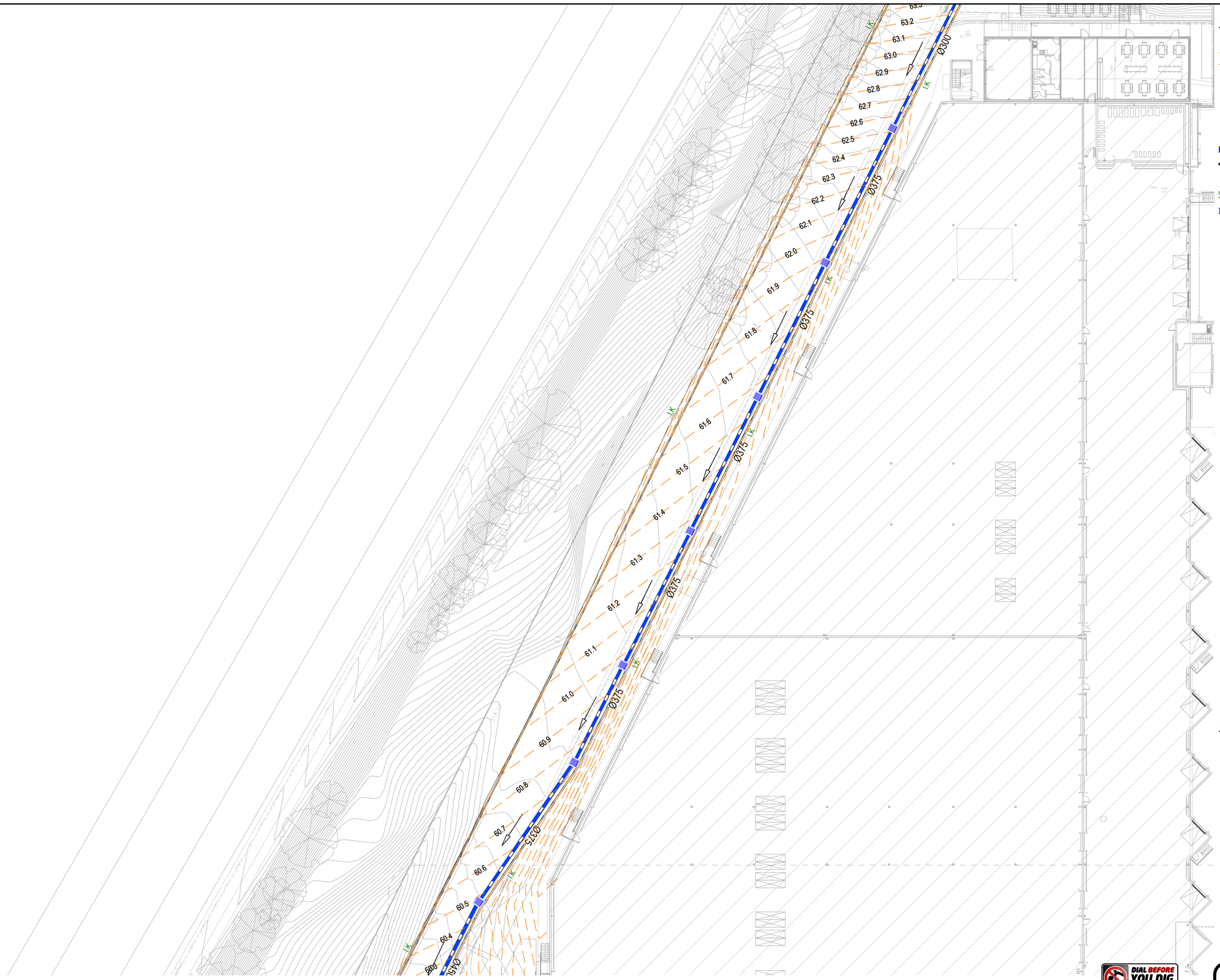
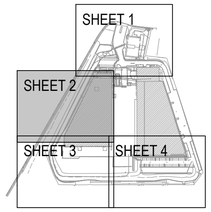


LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EASEMENT
- PROPOSED FOX DIVERSION PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED JUNCTION PIT
- PROPOSED DIRECTION OF FLOW
- PROPOSED STORMWATER PIPE
- RETAINING WALL
- PROPOSED DISH DRAIN
- PROPOSED TRENCH DRAIN
- PROPOSED GRATED DRAIN

KEY PLAN



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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: DRAINAGE PLAN

SHEET 2 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-0702

Beca Project Number:

Rev.: A

Document No.

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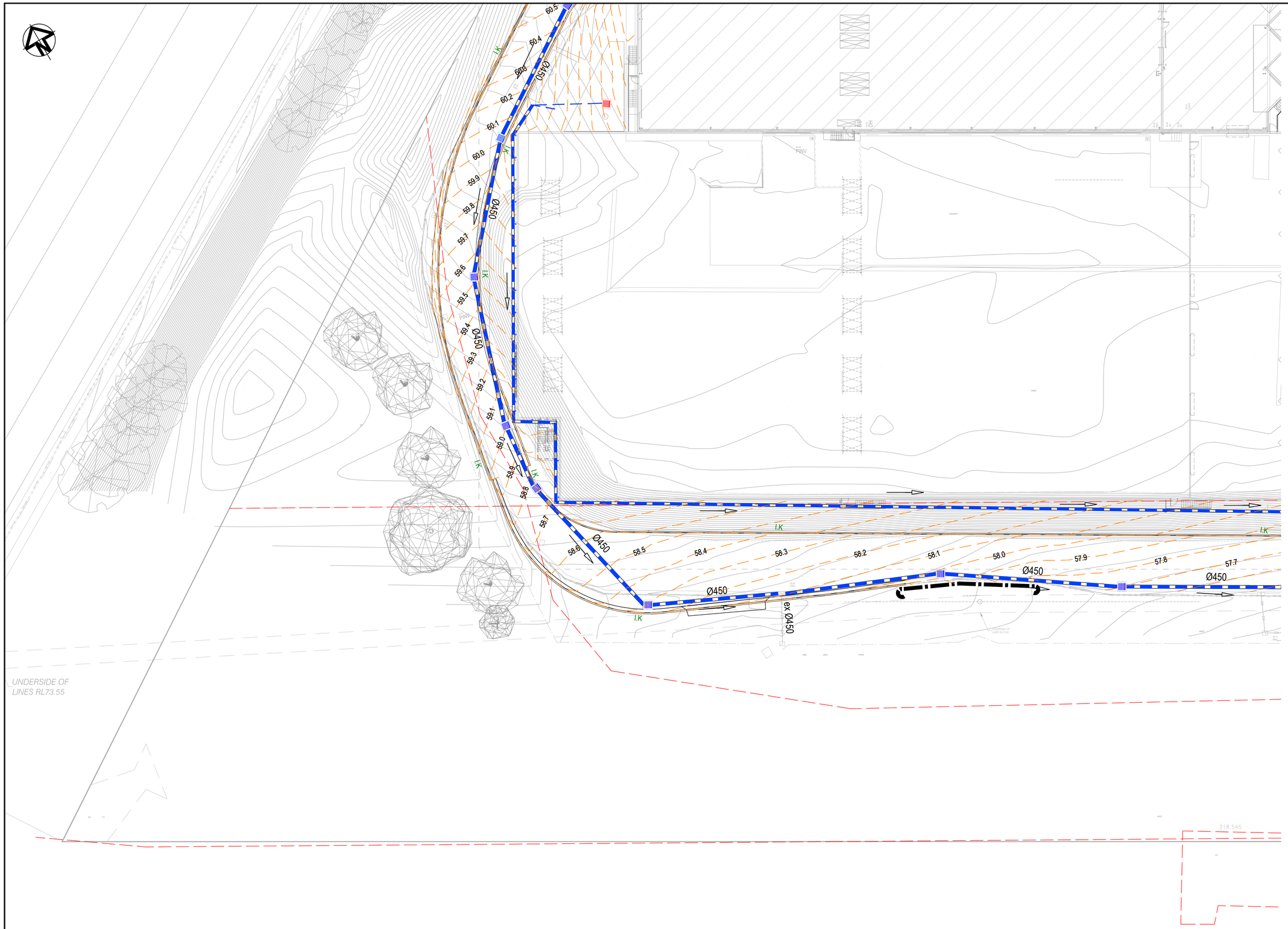
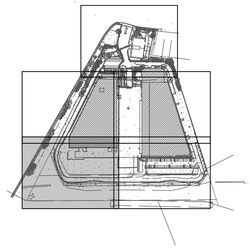
Drawing Plotted:



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EASEMENT
- PROPOSED FOX DIVERSION PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED JUNCTION PIT
- PROPOSED DIRECTION OF FLOW
- PROPOSED STORMWATER PIPE
- RETAINING WALL
- PROPOSED DISH DRAIN
- PROPOSED TRENCH DRAIN
- PROPOSED GRATED DRAIN

KEY PLAN



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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: DRAINAGE PLAN

SHEET 3 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-0703

Beca Project Number:

Rev.: A

Document No.

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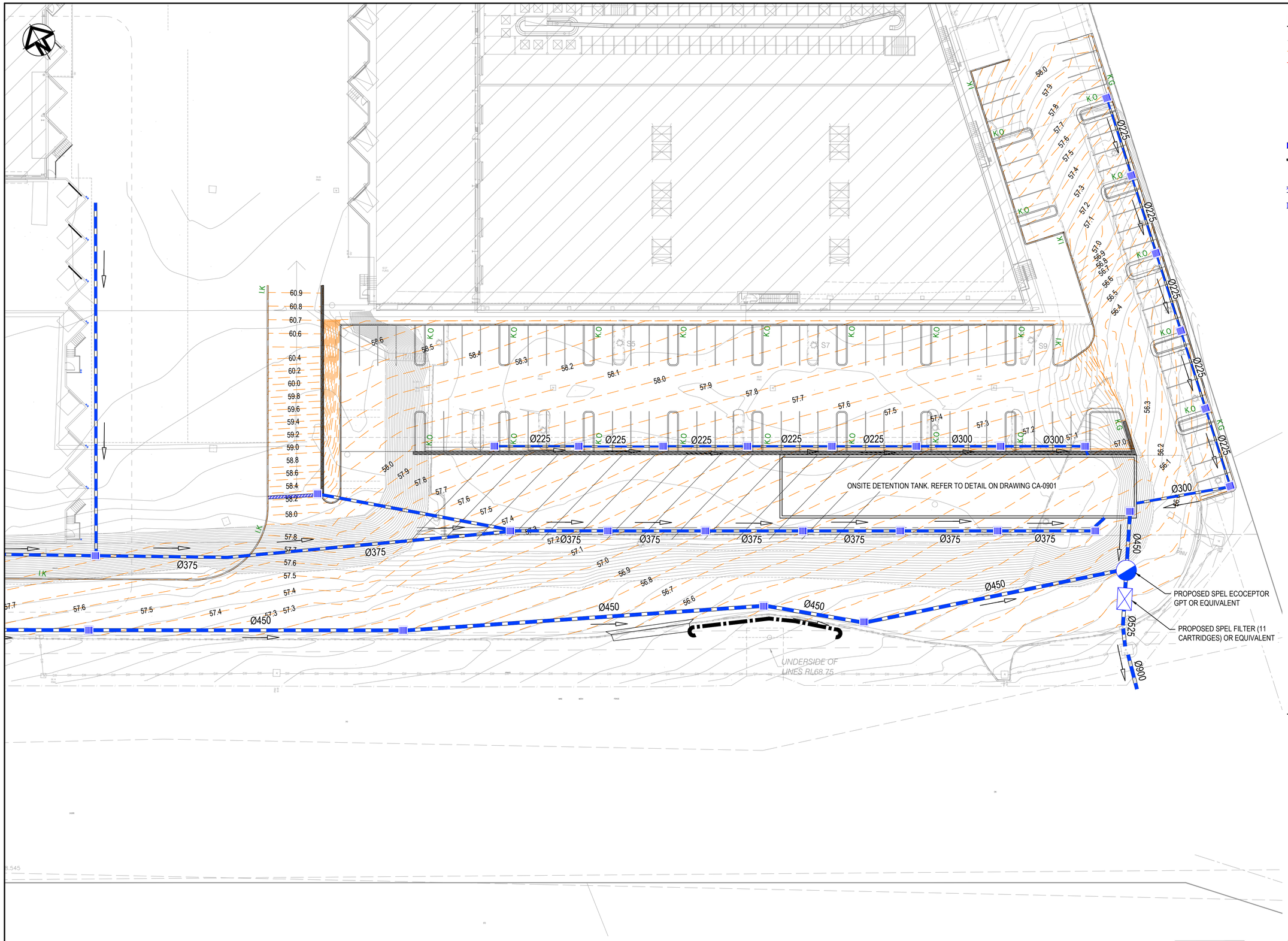
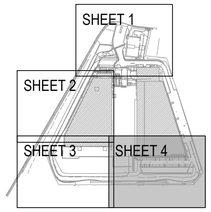


LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EASEMENT
- PROPOSED FOX DIVERSION PIT
- PROPOSED SURFACE INLET PIT
- PROPOSED JUNCTION PIT
- PROPOSED DIRECTION OF FLOW
- PROPOSED STORMWATER PIPE
- RETAINING WALL
- PROPOSED DISH DRAIN
- PROPOSED TRENCH DRAIN
- PROPOSED GRATED DRAIN

KEY PLAN



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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22
	Drawn	C.LAWRENCE	10.05.22
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22
	Drg Check	B.STRANG	10.05.22

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: DRAINAGE PLAN

SHEET 4 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-0704

Beca Project Number:

Rev.: A

Document No.

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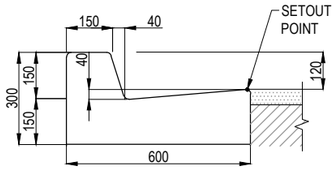
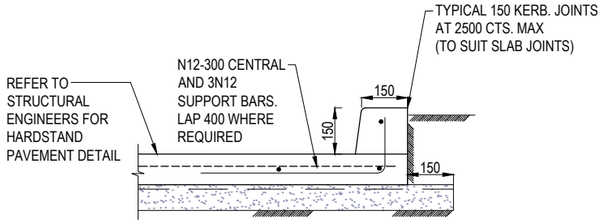
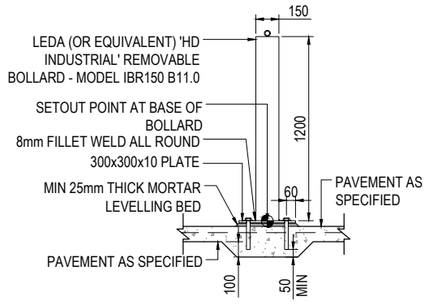


KERB AND GUTTER (K.G)
SCALE 1:10

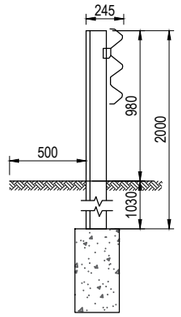


INTEGRAL KERB (I.K)
SCALE 1:10

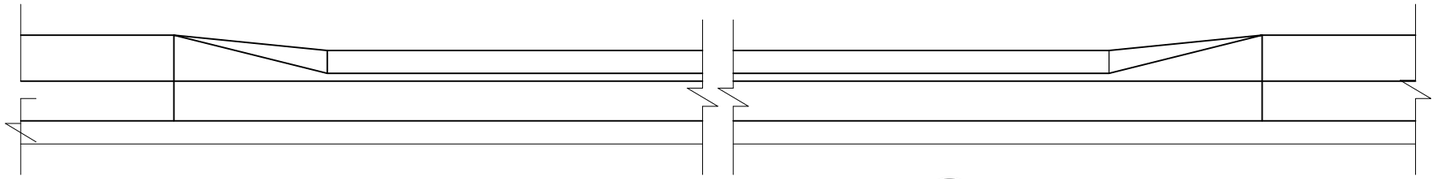


PERMANENT (CONCRETE PAVEMENT)
SCALE 1:20

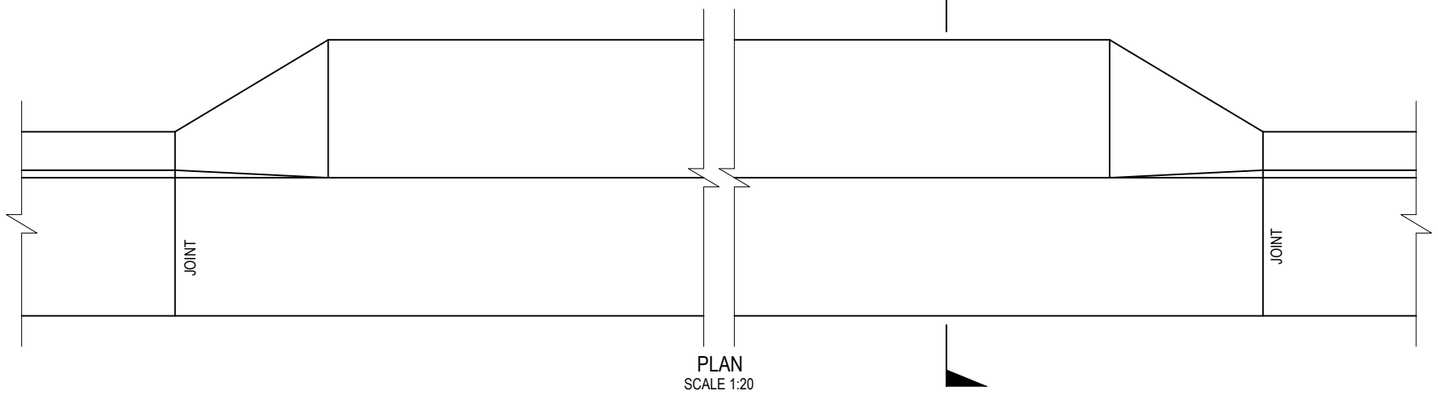
NOTE:
ALL ELEMENTS TO BE GALVANISED.
CONTRACTOR TO ENSURE BOLLARDS DO NOT CONFLICT WITH PROPOSED OR EXISTING SERVICES.
BOLLARD TO BE STRICTLY INSTALLED TO MANUFACTURERS DETAILS AND SPECIFICATIONS



THRIE BEAM BARRIERS
1:20
REFER TO MANUFACTURERS DETAILS

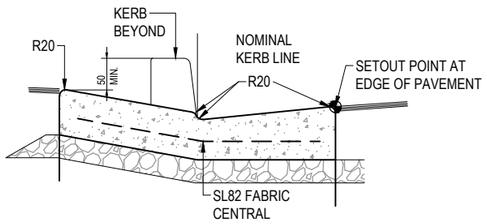


ELEVATION
SCALE 1:20



PLAN
SCALE 1:20

VEHICULAR CROSSING



SECTION 1 / -
SCALE 1:10

PRELIMINARY
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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)
Reduced Scale (A3) 1:4000m

Design	E.MORAITIS	10.05.22	Approved For Construction*
Drawn	C.LAWRENCE	10.05.22	
Dsg Verifier	C.OAKES	10.05.22	
Drg Check	B.STRANG	10.05.22	Date

* Refer to Revision 1 for Original Signature

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: CIVIL AND DRAINAGE DETAILS SHEET 1 OF 1

Discipline: CIVIL

Drawing No. / Beca Project Number: 2527456-CA-0801

Rev. A

Document No.

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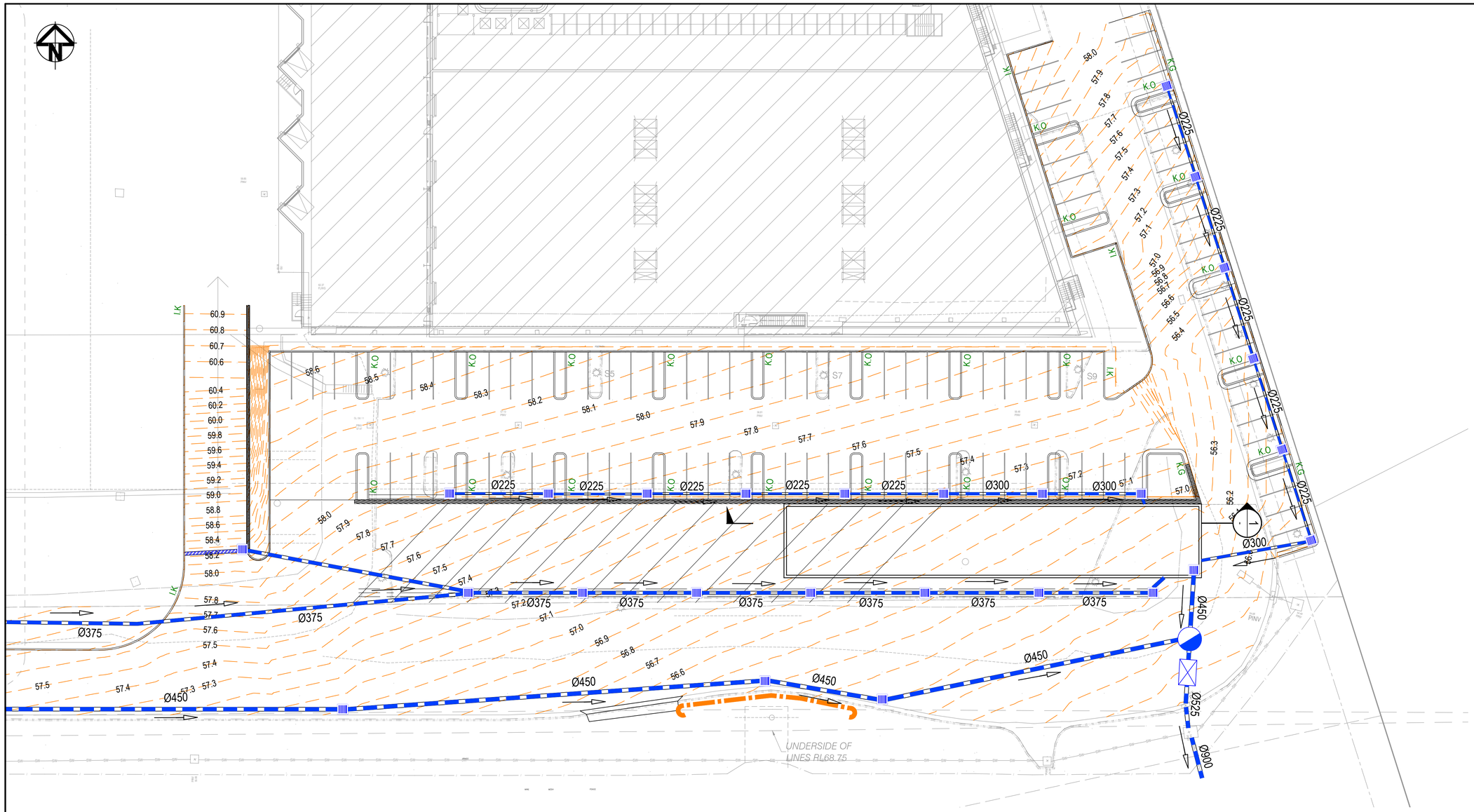
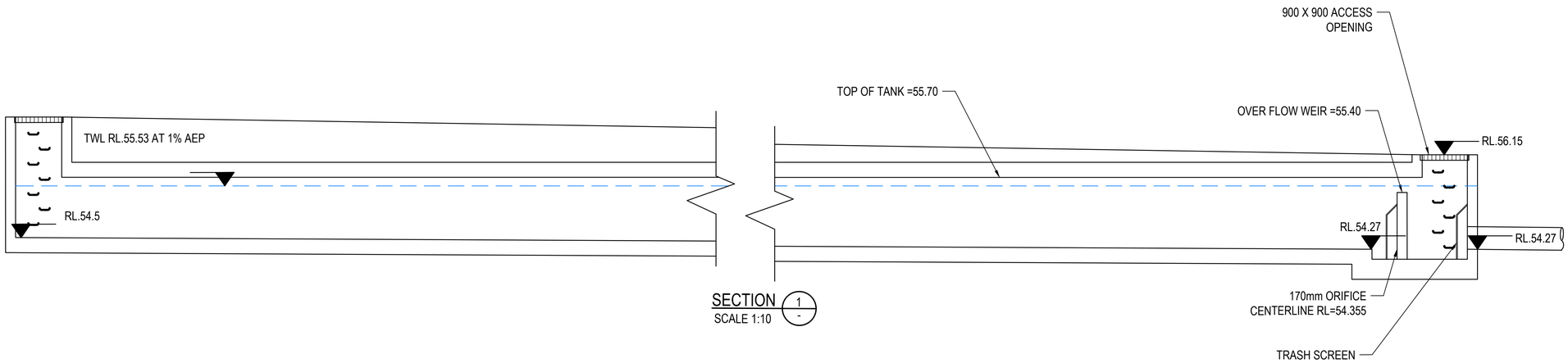


LEGEND

- SEDIMENT FENCE
- SECURITY FENCE
- SHAKER PAD
- SEDIMENT BASIN PROVIDED BY THE DEVELOPER
- INSTALL TEMPORARY SILT TRAPS AROUND PITS UNTIL SURROUNDING PAVEMENTS HAVE BEEN COMPLETED.
- SP — STOCKPILE
- STRAW BALE FILTER



SECTION 1 / -
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No.	Revision	By	Chk	Appd	Date
A +	ISSUED FOR REVISION	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:4000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date

* Refer to Revision 1 for Original Signature

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: OSD PLAN AND DETAILS SHEET 1 OF 1

Discipline: CIVIL

Drawing No.: 2527456-CA-0901 | Beca Project Number: | Rev.: A

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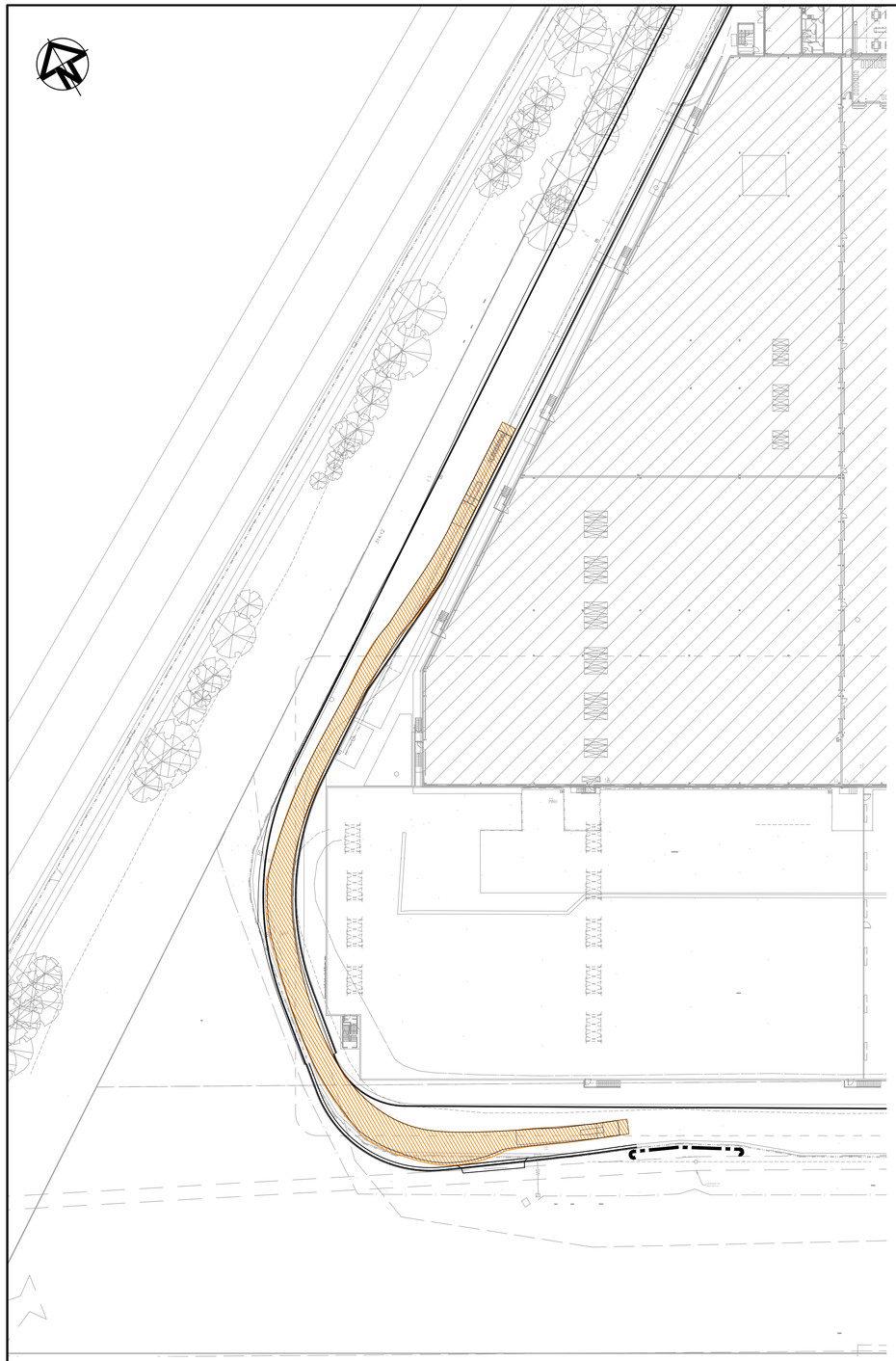

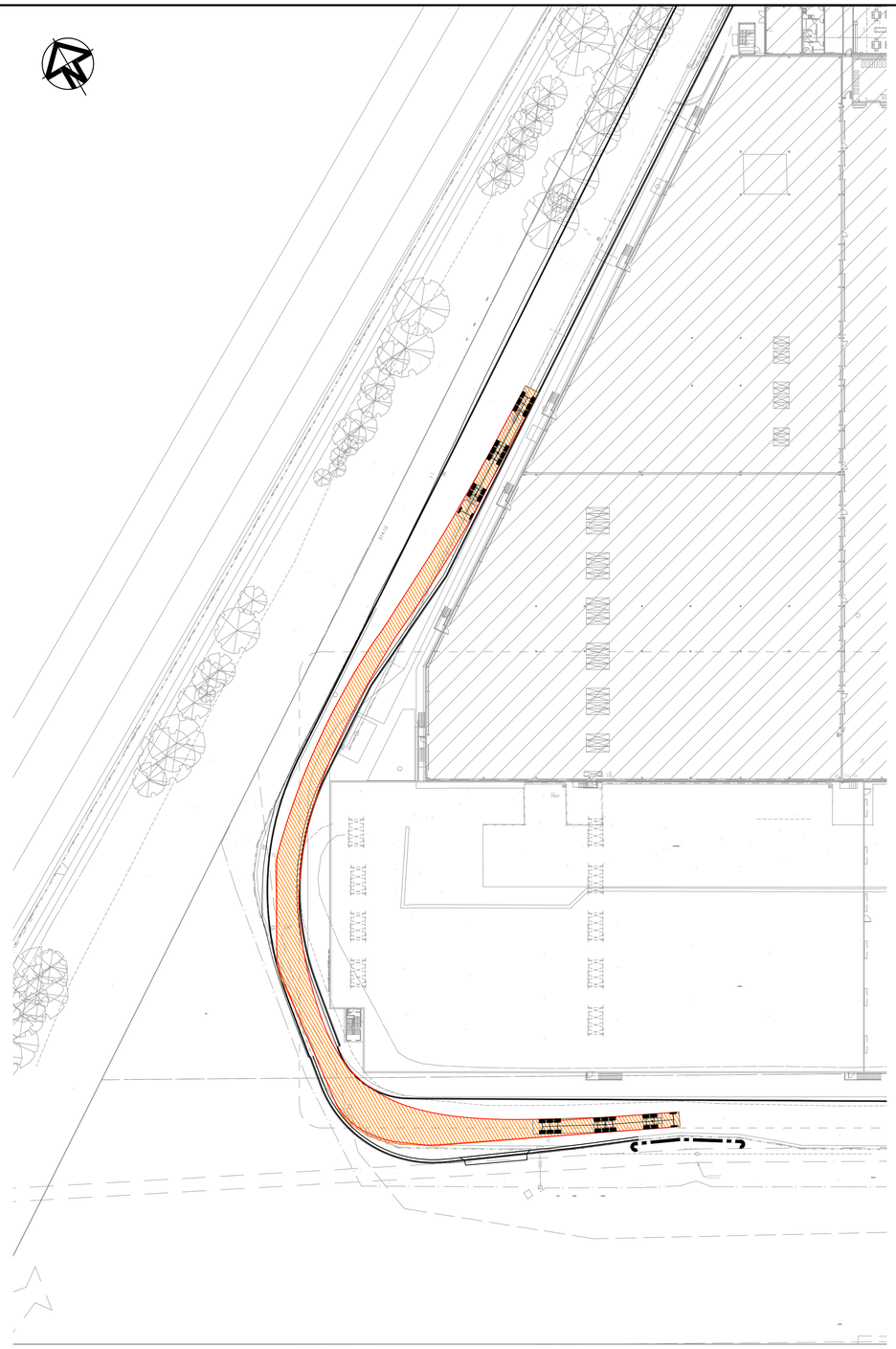

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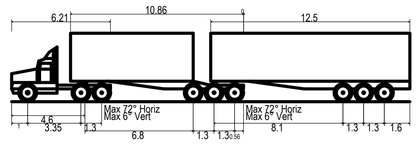

B-Double (25.0m)	
Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: VEHICLE TRACKING

SHEET 1 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-1001

Beca Project Number:

Rev.: A

Document No.

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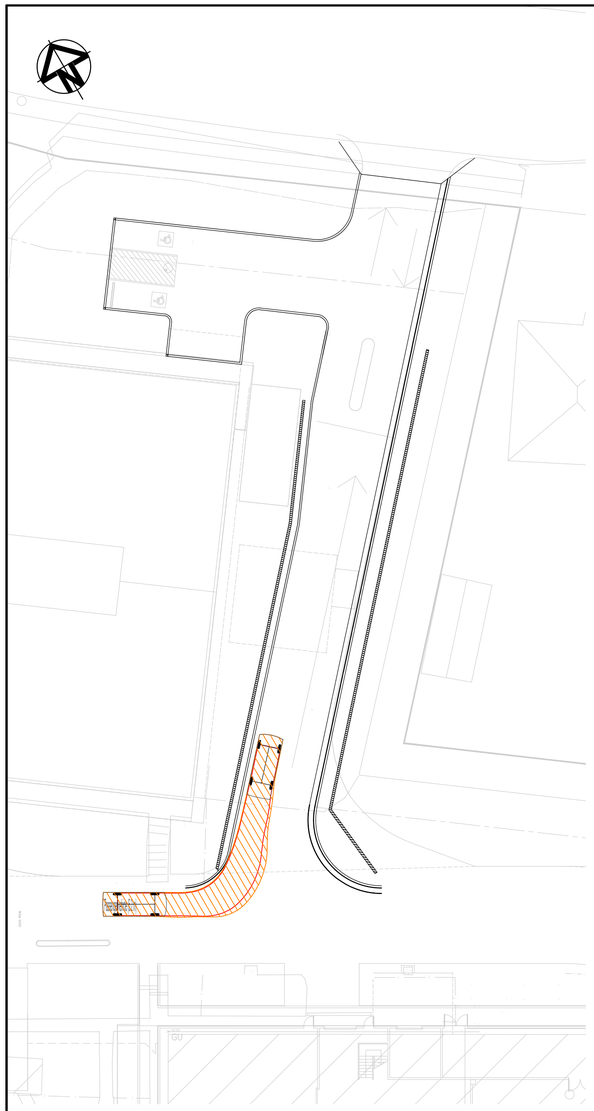
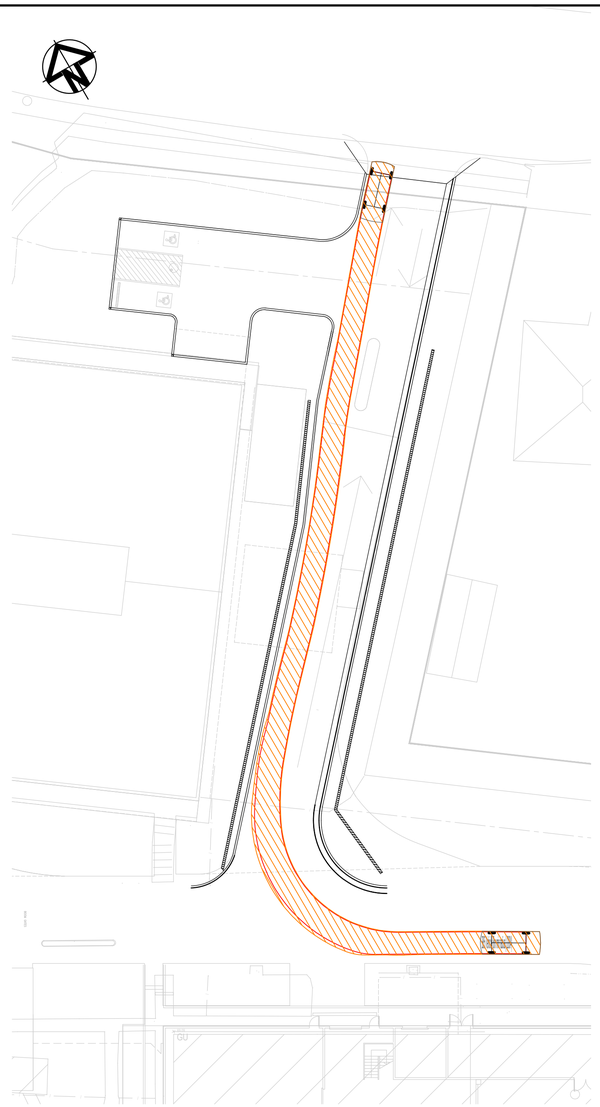
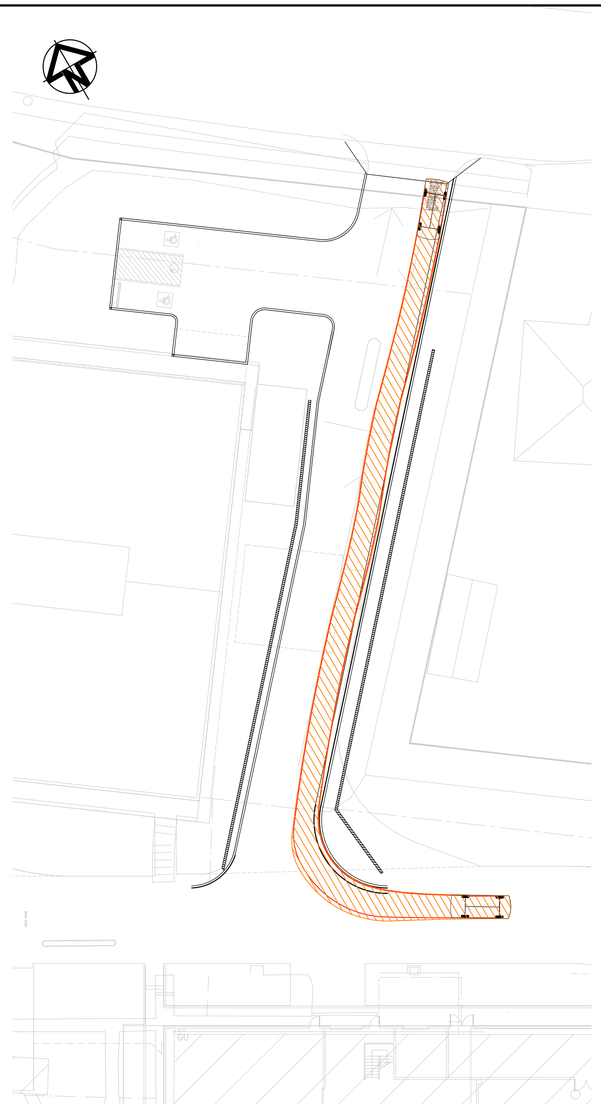
Drawing Plotted:







B85 Vehicle (8m min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m

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A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date

* Refer to Revision 1 for Original Signature

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: VEHICLE TRACKING

SHEET 2 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-1002

Beca Project Number:

Rev.: A

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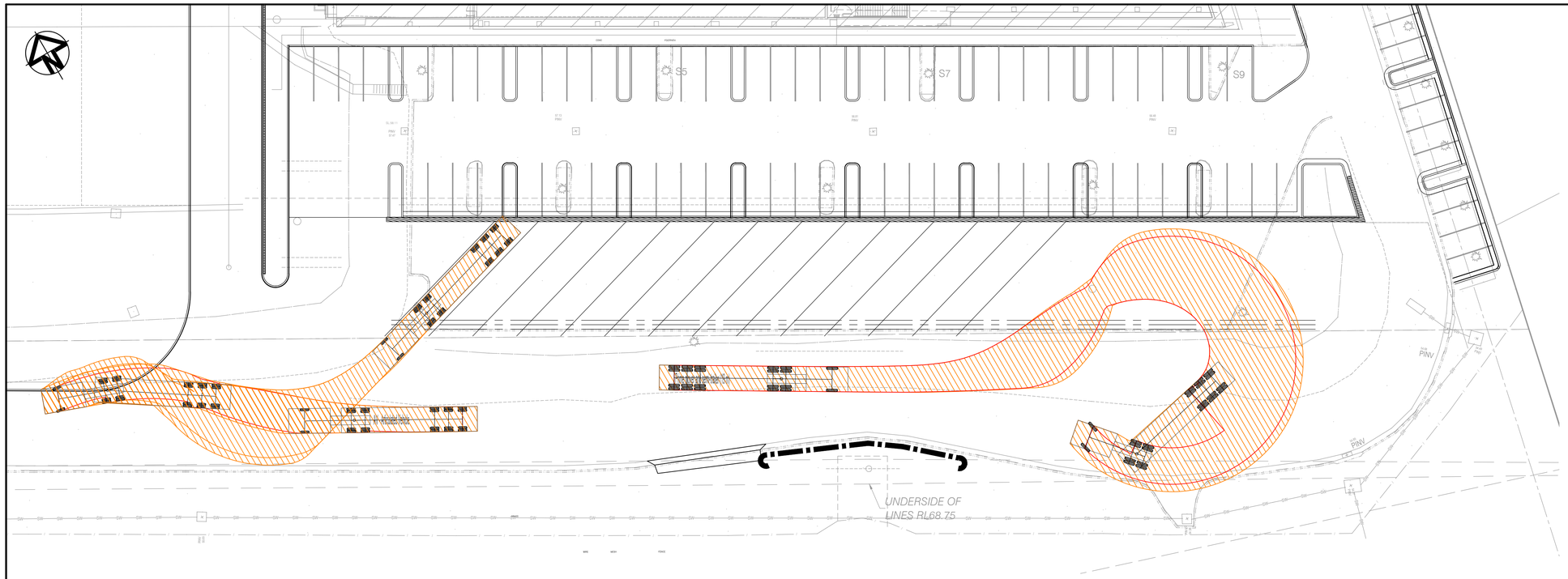
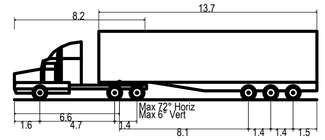
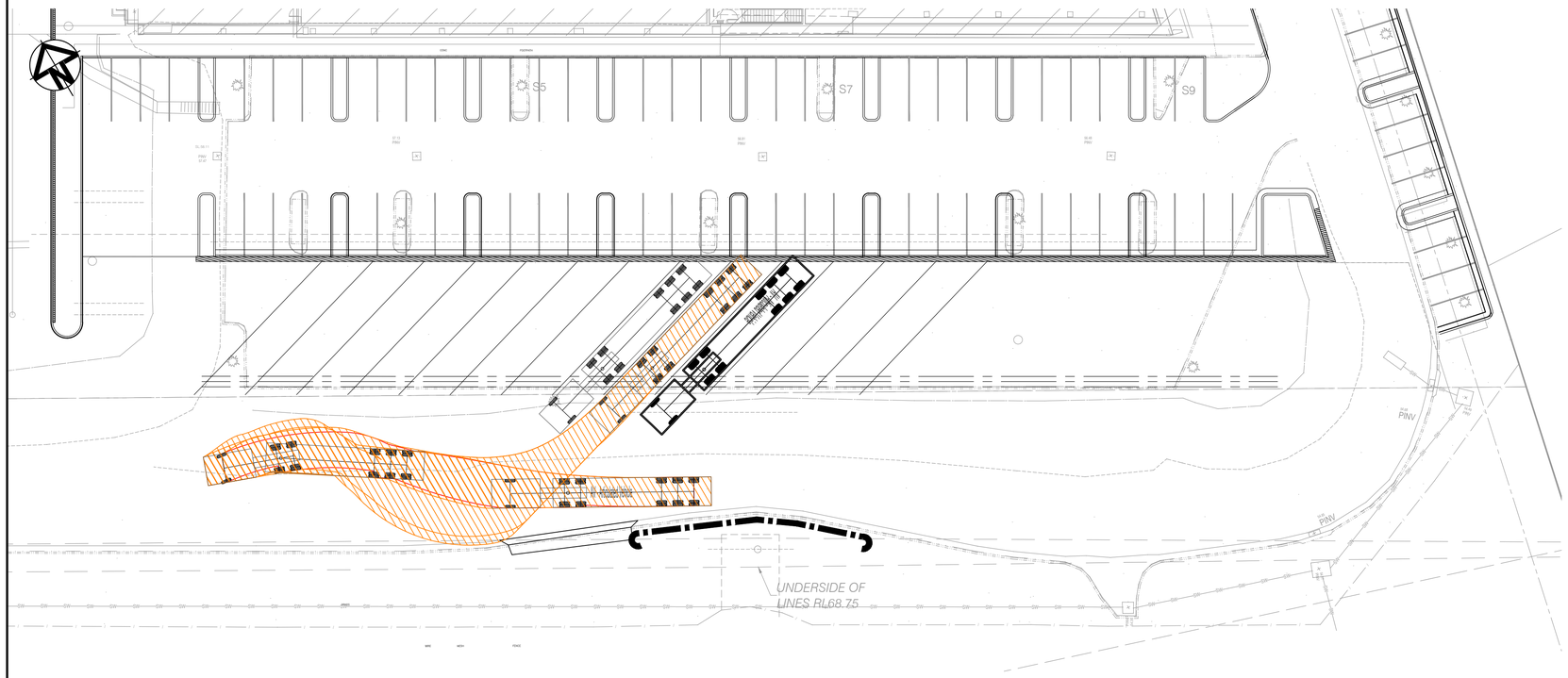
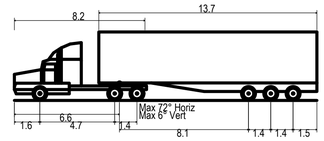




AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m





AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	10.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22	
	Drg Check	B.STRANG	10.05.22	Date

* Refer to Revision 1 for Original Signature

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: VEHICLE TRACKING

SHEET 3 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-1003

Beca Project Number:

Rev.: A

Document No.

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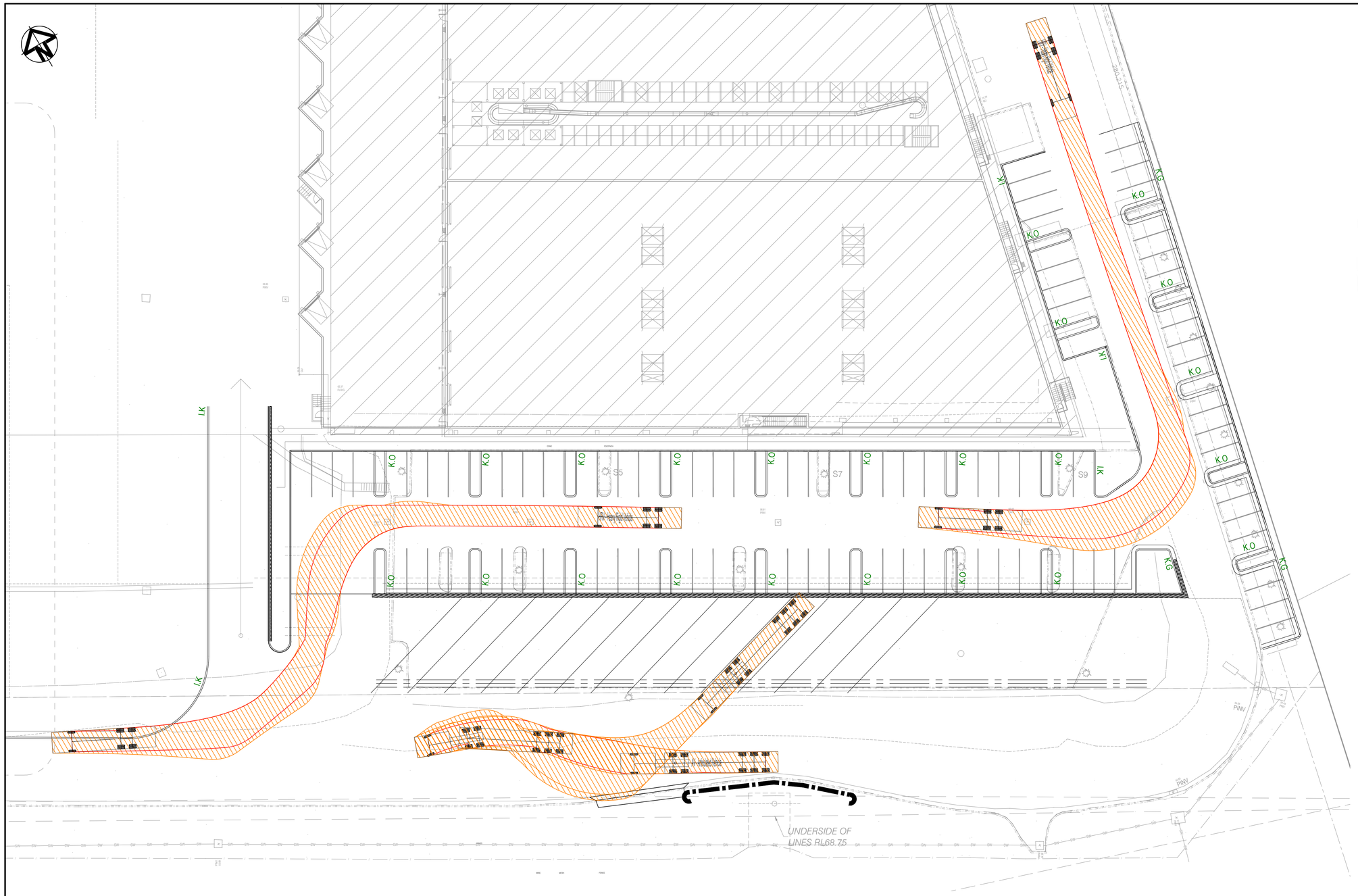
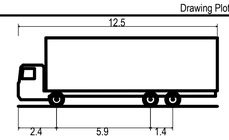
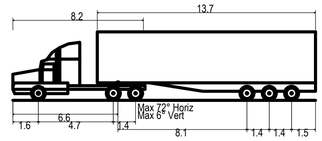




HRV - Heavy Rigid Vehicle

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m



AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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No.	Revision	By	Chk	Appd	Date
A +	~~UNDER REVISION~~	C.R.L	B.S	C.O	10.05.22

Original Scale (A1)	Design	E.MORAITIS	10.05.22
	Drawn	C.LAWRENCE	10.05.22
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	10.05.22
	Drg Check	B.STRANG	10.05.22

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Beca

Client: americold.

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: VEHICLE TRACKING

SHEET 4 OF 4

Discipline: CIVIL

Drawing No.: 2527456-CA-1004

Beca Project Number:

Rev.: A

Document No. 2527456-CA-1004.DWG

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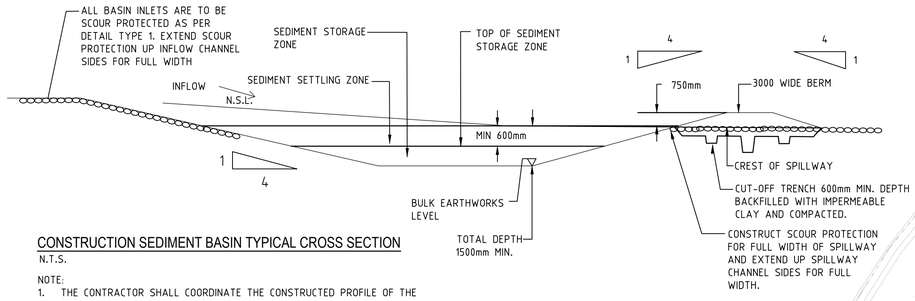
B

Appendix B – Erosion and Sediment Control Plan

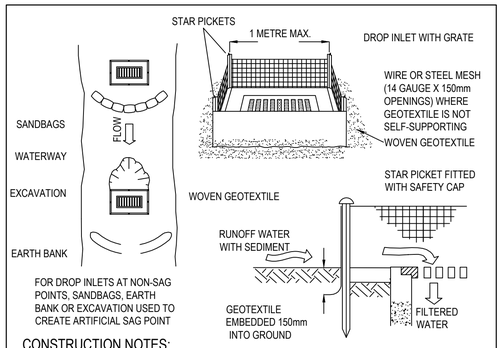
Drawing Plotted:



CONSTRUCTION SEDIMENT BASIN TYPICAL CROSS SECTION

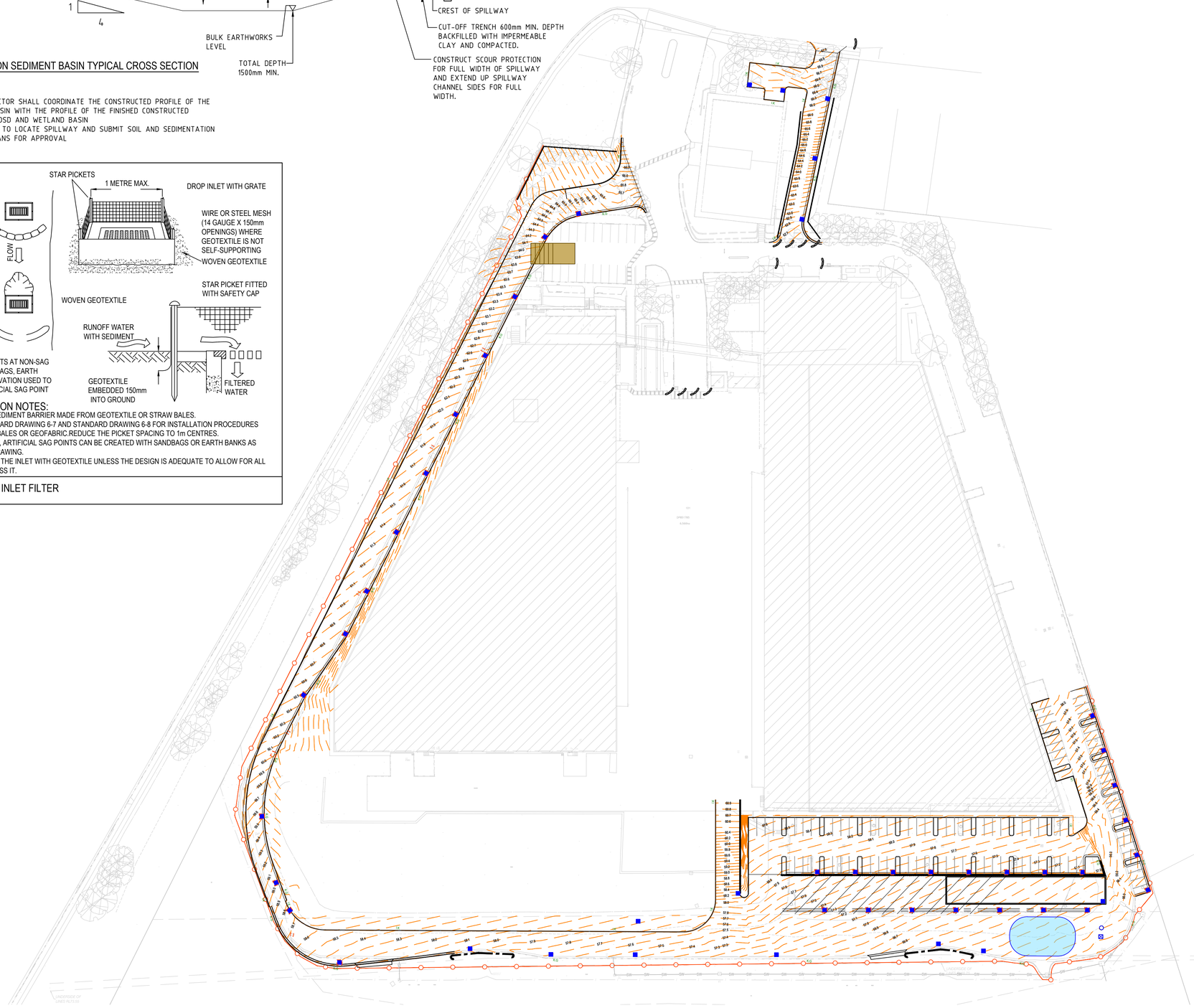
N.T.S.

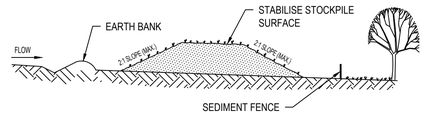
NOTE:
1. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTED PROFILE OF THE SEDIMENT BASIN WITH THE PROFILE OF THE FINISHED CONSTRUCTED PERMANENT OSD AND WETLAND BASIN
2. CONTRACTOR TO LOCATE SPILLWAY AND SUBMIT SOIL AND SEDIMENTATION CONTROL PLANS FOR APPROVAL



CONSTRUCTION NOTES:
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC REDUCE THE PICKET SPACING TO 1m CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

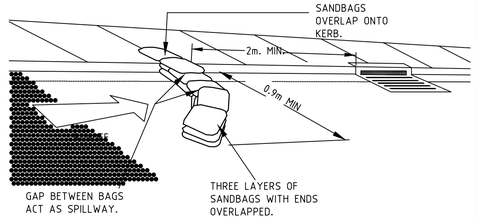
GEOTEXTILE INLET FILTER



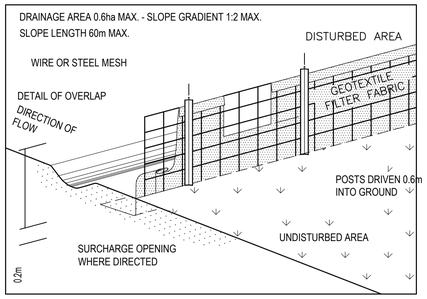


CONSTRUCTION NOTES:
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

STOCKPILES



SANDBAG SEDIMENT TRAP



SEDIMENT FENCE

INSTALLATION:
1. EXCAVATE A TRENCH 200mm DEEP.
2. DRIVE POSTS 500-700mm INTO GROUND AT A MAXIMUM PACING OF 3.0m CENTRES.
3. PLACE AND FIX SUPPORT MESH (F52) TO POST.
4. LAY BIDIM GEOFABRIC (SF 2000) AGAINST THE SUPPORT MESH AND FIX BY TIE WIRE, STAPLES OR HOG RINGS.
5. PLACE BIDIM IN TRENCH AND BACKFILL WITH SOIL.

LEGEND

- SEDIMENT FENCE
- PROPOSED STORMWATER
- PROPOSED STORMWATER PIT
- EXISTING CONTOURDS
- PROPOSED CONTOURS
- SHAKER PAD
- SEDIMENT BASIN. LOCATION AND VOLUME TO BE CONFIRM BY CONTRACTOR
- INSTALL TEMPORARY SILT TRAPS AROUND PITS UNTIL SURROUNDING PAVEMENTS HAVE BEEN COMPLETED. TYPICAL.
- SP — STOCKPILE. LOCATION TO BE DETERMINED BY CONTRACTOR
- SANDBAG SEDIMENT TRAP TO BE INSTALLED UPSTREAM OF ALL ON GRADE KERB INLET PITS

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PRELIMINARY
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
A	ISSUE A FOR EIS	C.R.L	B.S	C.O	02.05.22

Original Scale (A1)	Design	E.MORAITIS	02.05.22	Approved For Construction*
	Drawn	C.LAWRENCE	02.05.22	
Reduced Scale (A3) 1:1000m	Dsg Verifier	C.OAKES	02.05.22	
	Drg Check	B.STRANG	02.05.22	Date
	* Refer to Revision 1 for Original Signature			

Beca

Client: americold

Project: PROSPECT SOUTH EXPANSION CIVIL WORKS

Title: EROSION AND SEDIMENT CONTROL PLAN SHEET 1 OF 1

Discipline: CIVIL

Drawing No. 2527456-CA-0111

Rev. A

Document No.

DO NOT SCALE FOR SET OUT DIMENSIONS

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