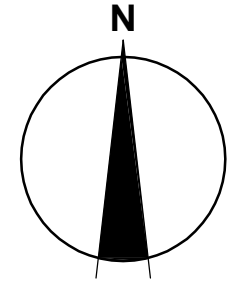


Estuary

Stage 9

City Of Greater Geelong



LOCALITY PLAN
MELWAYS REF: 468 D6

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- 0250EHL-09- 19 Drainage Longitudinal Sections - 3 & Pit Schedule
- 0250EHL-09- 20 Details
- 0250EHL-09- 21 Subdivision Setout Plan



Designed for Living



Principal

Leopold Property Development Pty Ltd
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Southbank, Victoria 3006



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A.B.N. 99 124 206 819

Standard Construction Notes

1. GENERAL

1.1 **Drawings** - The drawings are to be read in conjunction with the contract specification and the responsible Authorities standard drawings and current specifications for Roadworks and Drainage. Any observed discrepancy to be referred to the Superintendent prior to start of work.

1.2 **Responsible Authority Documentation Availability** - A set of the respective responsible Authority standard construction documentation including drawings and specification/s are to be provided by the Contractor and made available on-site for the duration of the construction period.

1.3 **Conformity with Drawings** - All works are to be finished in conformity with the lines, grades, thicknesses and cross sections shown in the drawings.

1.4 **Materials and Workmanship** - Materials and workmanship to comply with responsible Authority specifications and relevant SAA Codes.

1.5 **Tolerances** - Works are to be constructed in compliance with tolerances specified by the relevant responsible Authorities.

1.6 **Minimum Standards** - The standards of work and materials stated in the drawings and specification are the minimum acceptable irrespective of relevant responsible Authority minimum standards.

1.7 **Sewer/Water Supply** - Construction notes specific to sewer and water supply asset construction are incorporated in the drawings approved by the Water Company as attached hereto.

2. EXISTING CONDITIONS

2.1 **Discrepancy with Drawings** - Any discrepancy observed/identified between the drawings and existing conditions and site features are to be referred to the Superintendent prior to start of any related work.

2.2 **Municipal Assets & Infrastructure** - The condition of existing Council assets potentially affected by the works is to be assessed by a joint site inspection with Council Officers prior to the start of works. Asset conditions are to be recorded and witnessed by Council and the Contractor. The Contractor is to arrange and record site inspections and liable for all rectification/reinstatement costs for damage to existing assets.

2.3 **Utility Services** - The locations of existing utility services, as shown in the drawings, are not guaranteed. Exact service locations are to be proven prior to start of works. Service location works are to comply with the requirements of the relevant responsible Authority. The Contractor is liable for rectification/reinstatement costs for damage to existing utility services.

3. NOTIFICATIONS

3.1 **Council** - Minimum notification periods are:

- (a) **two (2) days** written notice of intention to start works
- (b) **two (2) days** notice to inspect condition of existing Council assets
- (c) **twenty four (24) hours** notice for weekend work
- (d) **twenty four (24) hours** notice for:
 - inspection of drainage works
 - inspection of sub-soil drains
 - proof roll of prepared sub-grade or constructed pavement
 - inspection of prepared base for concrete works
 - other works as stated in the drawings or specified

Or as otherwise agreed with Council Officers.

3.2 **Property Owners/Tenants** - Seven (7) days written notice to property owners/tenants affected by the works.

4. OCCUPATION OF PUBLIC ROADS

All roadworks signage to comply with VicRoads Worksite Traffic Management Code incorporating AS 1742.3.

4.1 **Roads under VicRoads jurisdiction** - The Contractor is to arrange VicRoads consent via "Application for Consent - Works within Road Reserves" (refer VicRoads web site).

4.2 **Roads under Council control** - The Contractor is to arrange and acquire requisite Road Closure Permits via Council's Traffic Officer.

5. SET OUT

5.1 **Survey Stations and Reference Marks** - The locations of survey stations and reference marks are to be verified prior to start of works.

5.2 **Road Chainages** - Road chainages as shown in the drawings are to road centreline, unless otherwise stated.

5.3 **Kerb & Channel** - Kerb and channel radii and levels relate to edge of channel, unless otherwise stated.

5.4 **Drainage Pits** - The locations and orientation of drainage pits are to be accurately set out from co ordinates and/or offsets as stated.

5.5 **Pipe Drains** - Drainage lines are to be accurately set out from coordinates and/or offsets as stated. Further to Standard Note 5.4 drainage lines at pits are to be accurately set out to ensure that the outlet pipe is aligned directly opposite the inlet pipe (where deflection angles are 45° or less) or as otherwise stated in the drawings or directed.

6. TOPSOIL

6.1 **Stripping Limits** - Clearing and stripping of topsoil to be restricted to areas to be excavated/filled as stated in the drawings or limits as otherwise directed by the Superintendent.

6.2 **Surplus Material** - Surplus topsoil must be re-used on-site unless otherwise stated in the drawings or directed by the Superintendent.

7. EXISTING VEGETATION

All existing trees and significant vegetation within and external to the worksite are to be retained, preserved and protected unless otherwise stated in the drawings or directed by the Superintendent.

8. EXCAVATION/TRENCHING

8.1 **Trenching** - Trenching operations exceeding 1.5 metres depth are to comply with the provisions of the Mines (Trenches) Regulations 1982.

8.2 **Work close to Trees and Vegetation** - Excavation work within the drip line of trees is not to be performed unless otherwise stated in the drawings or approved by the Superintendent.

8.3 **Unstable Sub-Grade** - Unstable sub-grade/"soft spots" to be excavated to a sound proof-rolled base and backfilled with material approved by Council.

9. SOIL EROSION

The Contractor must install necessary protection works to effectively manage and limit soil erosion within the worksite. Works to include, but are not limited to:

9.1 **Silt Fences** - downstream of all exposed areas.

9.2 **Silt Barriers** - upstream of all pits

10. DRAINAGE WORK

10.1 **Existing Drains** - The location of existing drainage assets to be verified prior to start of works.

10.2 **Pipe Class** - Pipes to be, unless otherwise stated in the drawings:

- (a) Roads & Reserves - Class 2 Rubber Ring Jointed RCP
- (b) Easements - Rubber Ring Jointed RCP/FRP or Sewer Class Solvent Cement UPVC

10.3 **Pit Covers** - Pit covers are to be placed to match actual finished surface profiles - level and cross fall - of adjacent structures/surfaces. Finished surface levels stated in the drawings are indicative, for depth range purposes, and are not to be used as the basis for setting final pit cover levels

10.4 **Pit Construction** - Precast standard pits are to be installed. Cast in-situ standard pits are only to be constructed where approved by the Superintendent. All sumps in precast concrete pits are to be infilled with concrete flush to the inlet level of the outlet pipe unless otherwise approved by the superintendent.

10.5 Sub-Soil Drains

- (a) Entry to pits to be trimmed flush with inner wall and effectively mortared in place through the full pit wall thickness.
- (b) Details of granular filter material including source to be submitted to the Superintendent prior to start of sub-soil drainage works.

11. BACKFILL MATERIAL

11.1 **Trenches under all edgings/kerb sections & Nature Strips** - 20mm Class 3 Fine Crushed Rock or other material as approved by Council.

11.2 **Trenches under road pavement** - Stormwater pipes are to be backfilled with two percent (2%) cement stabilised sand to extend from the bottom of the pipe to the springline (mid point) of the pipe. Class 3 Fine Crushed Rock is then to be used as the backfill material from the springline up to the road pavement base.

11.3 **Allotments/Reserves/** - Selected best quality excavated in-situ material or other material as approved by Council.

12. COMPACTION STANDARDS

Compaction standards are to be checked and proven in accordance with the requirements of AS 1289. Where unspecified by the responsible Authority, the following minimum standards will apply:

12.1 Structural Fill

- (a) Fill base - top 150mm 95% standard compaction
- (b) Fill zone - 95% standard compaction
- (c) Under road pavement - zone less than 450mm under road pavement surface 98% standard compaction

12.2 Road Pavement

- (a) Road sub-grade - top 150mm 98% standard compaction
- (b) Pavement materials - 98% modified compaction

12.3 Trench Backfill

- (a) Granular under all pavement & edgings/kerb sections - 98% modified compaction
- (b) Granular behind kerbing - 95% modified compaction
- (c) Earth around structures - 95% standard compaction

13. CONCRETE WORK

13.1 Minimum Strength

- Concrete for drainage pits to have a minimum compressive strength of 32 MPa at 28 days.
- Concrete for all other applications to have a minimum compressive strength of 25 MPa at 28 days

13.2 **Bar Chairs** - All reinforcement in footpaths, vehicle crossings and roads to be supported by appropriately sized bar chairs.

13.3 **Slump** - Concrete to have 75mm maximum slump.

13.4 **Kerb Cement Content** - Concrete for kerb extrusion machines to have a minimum cement content of 280 kg/m³.

13.5 **Services Distribution Mains & Conduits** - Mains and conduits are to be installed prior to kerb section construction works.

13.6 **Footpaths** - All footpaths are to be a minimum of 125mm thick with F62 reinforcement, bedded on min of 75mm compacted Class 3 FCR. Bedding to extend 100mm beyond the edges of the footpath. Contraction joints to be constructed at 12.5m intervals. Class 4 FCR is to be used where filling is required under footpath Class 3 FCR bedding material.

13.7 **Continuous Kerb** - To allow for a continuous concrete kerb and channel pour the "Gatic" HD concrete surround is to be in place prior to the pour commencing. If the pit surrounds are not in place then the initial kerb and channel pour is to stop one metre either side of pit.

14. ROAD PAVEMENT WORK

14.1 **Pavement Composition** - The minimum standard of pavement composition is stated in the drawings for the respective road sections.

14.2 **Road surfacing** - Road surfacing must not be performed until all other works have been completed.

15. IDENTIFICATION MARKING

All identification marking figures are to be a minimum of 50mm high.

15.1 **Conduits** - Letter "W", "G" "E" or "T" for water, gas, electricity or telecommunications conduit to be stamped into face of kerb sections at frontage of lot served.

15.2 **House Drain Connections** - Letter "H" to be stamped into face of kerb sections opposite street drain connection point.

15.3 **Lot Nos.** - Lot Nos. to be stenciled in white paint on face of kerb sections at lot frontages.

16. TESTING

16.1 **Specified Testing** - Testing will be conducted in compliance with specified requirements. The Contractor is liable for all costs.

16.2 **Proof-Rolling** - Pneumatic tyred plant minimum weight 20 tonne with minimum ground contact pressure 450 kPa per tyre.

17. EXPOSED SURFACES RESTORATION

17.1 **Topsoiling** - All exposed residual surface areas at completion of civil works to be topsoiled with 100mm depth of best available material.

17.2 **Allotments/Reserves** - Allotments and reserves are to be evenly graded at a minimum gradient of 1 in 100 to their nominated drainage connection points.

17.3 **Nature Strips** - Nature strip surfaces are to be trimmed to grade between adjacent surfaces. Top-soiling and compaction operations are to ensure there is no later settlement/subsidence.

17.4 **Top-Dressing** - Undisturbed grassed areas are to be top-dressed and evenly graded as directed by the Superintendent.

17.5 **Hydroseeding** - At completion of the above works all prepared exposed surfaces are to be well watered and hydroseeded.

17.6 **Batter Slopes** - Batter slopes shall be a maximum of 1 in 6.

18. FINAL WORKS PRESENTATION

At Practical Completion the following minimum standards of presentation will apply:

18.1 **Roads/Paved Areas** - All roads and paved areas are to be swept/washed down to produce clean surfaces free of all deleterious materials.

18.2 **Pipe Systems** - All pipe systems are to be flushed and cleared of all accumulated debris and deleterious materials.

18.3 **Site** - The site is to be prepared to a state acceptable for presentation to the public for sale purposes and is to be in a condition satisfactory to the Superintendent with completion of, at least, the following activities:

- (a) all incidental and minor works
- (b) site clean up operations
- (c) site cleared of all facilities, temporary structures, plant, litter, surplus materials, etc. that are to be removed off-site.

18.4 **Reserve Frontages** - Round topped treated pipe bollards (0.6m high) are to be placed across reserve frontages at 1.5m centres. A demountable section for vehicle access consisting of an appropriate length of 50mm diameter (2.3mm wall thickness) galvanised water pipe, short section of chain (3 links) welded to each end. Two galvanised steel bollards - one each side of the entry, with one end to have a D20 padlock, which locks in to a link, which has been welded onto the bollard. Unless otherwise stated on plans.

18.5 **Street Signs** - Street signs are to be located as indicated on the plans and installed in accordance with Vicroads Traffic Engineering Manual Volume 2. Mounting height is to be to the underside of the sign and is to be a minimum of 2.1m and maximum of 3.0m

18.6 **No Through Road** - No through road signs are to be installed below the street sign where applicable.

19. MAINTENANCE WORKS

The Contractor must responsibly repair/remediate defective works as directed during the maintenance period.

19.1 **Council Assets** - for Maintenance Period of 3 months

19.2 **Water Company Assets** - for Defects Liability Period of 12 months and Maintenance Period of 2 years

19.3 **Inspection & General Maintenance Activities** - the Contractor must undertake regular site inspections of all completed works. Special attention must be given to the adequacy of the following soil protection works:

- (a) Silt fences
- (b) Silt barriers
- (c) Areas hydroseeded

DRAWING NOTES

1. Do not scale drawings - use only dimensions stated.
2. Dimensions - Dimensions are in metres [m] unless otherwise stated.
3. Australian Height Datum - Reduced levels are to Australian Height (AHD) unless otherwise stated.

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
C. Barker

Drawn
C. Barker

Checked
C. Birkett

Authorised
J. Golden

Date
June 2011

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Scale @ A1

As Shown



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Estuary

Stage 9
City Of Greater Geelong
Roadworks and Drainage
General Notes

Drawing No. 0250EHL-09-02 Rev B
Sheet No. 2 of 21

Approved for Construction



LEGEND - LAYOUT PLAN

- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- SERVICE CONDUITS
- TACTILE PAVERS
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING TELSTRA
- EXISTING WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- EXISTING HOUSE DRAIN
- EXISTING SWALE DRAIN
- EXISTING SURFACE LEVEL
- FINISHED BUILDING LINE LEVEL
- FINISHED RIDGE LINE LEVEL
- TOP OF RETAINING WALL
- BOTTOM OF RETAINING WALL
- RETAINING WALL
- ZERO LOT LINES
- PAVEMENT TREATMENT
- STRUCTURAL FILL > 200mm DEEP
- EX. STRUCTURAL FILL > 200mm DEEP
- DIRECTION OF FALL
- OVERLAND FLOW
- ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
- CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- PROPOSED DRIVEWAY

LOT BENCHING AND GENERAL GRADING NOTES

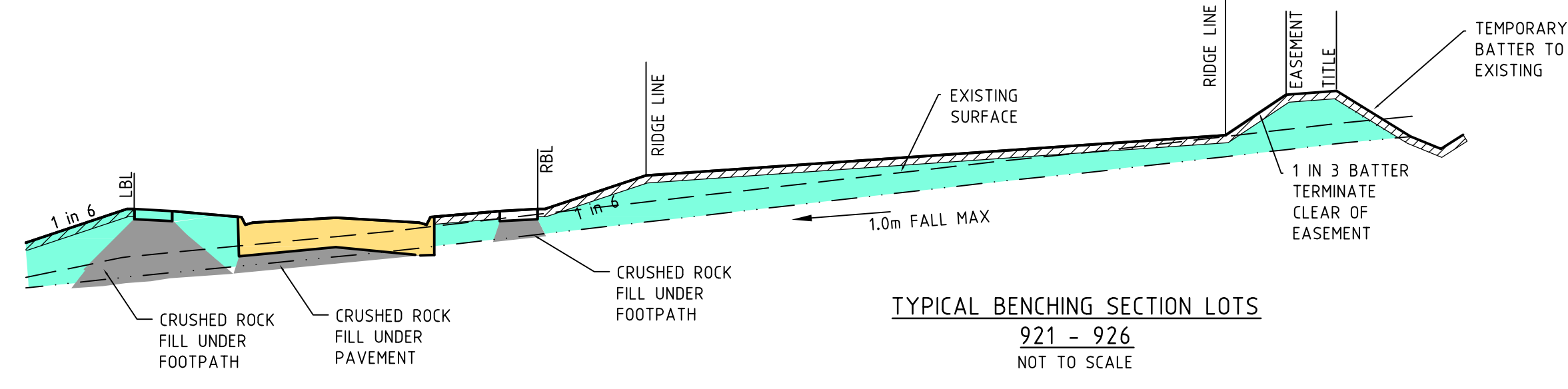
- LOT 921 TO 926 TO BE BENCHING GENERALLY IN ACCORDANCE WITH TYPICAL SECTION. FALL ALONG BUILDING ENVELOPE OF 1.0m MAX.
- REMAINING LOTS WILL BE RETAINED WHERE POSSIBLE TO NATURAL SURFACE WITHIN BUILDING ENVELOPE. LOTS IDENTIFIED WITH AN ASTERISK WILL REQUIRE RE-GRADE TO ACHIEVE MIN. REQUIRED LONGITUDINAL FALL (COUNCIL STANDARD 1 IN 100) CROSS FALL 1.0m MAXIMUM.

SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
VILLAGE GREEN DRIVE E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
TREEFERN STREET	EAST	2.10	EAST	2.70	EAST	2.30	EAST	1.70
VILLAGE GREEN DRIVE	WEST	2.10	WEST	2.70	EAST	2.30	EAST	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
SEASHORE WAY	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70

ROAD LAYOUT TABLE

ROAD NAME	RESERVE WIDTH (m)	ROAD WIDTH (m)			KERB TYPE		VERGE WIDTH (m)	
		LIP to LIP	INV to INV	BACK to BACK	NTH/WEST	STH/EAST	NTH/WEST	STH/EAST
TREEFERN STREET	13.00	6.60	7.20	7.50	B2	B2	4.00	-
SEASHORE WAY	13.00	6.60	7.20	7.50	B2	B2	4.00	-
VILLAGE GREEN DRIVE E-W	13.00	6.60	7.20	7.50	B2	B2	4.0	-
TREEFERN STREET	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
VILLAGE GREEN DRIVE N-S	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
TIMBERLAND STREET	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25



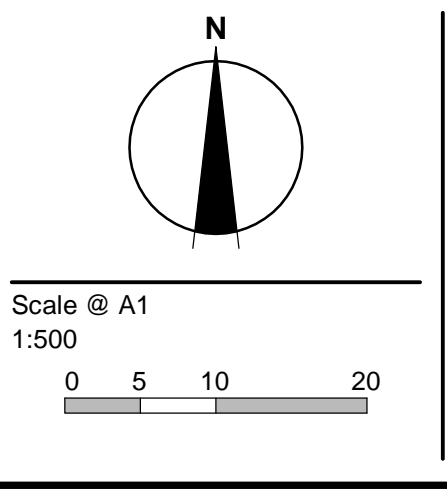
- CUT AREAS
- FILL AREAS
- TOPSOIL STRIP & RE-GRADE AREAS
- CUT AREA AND RESPREAD TOPSOIL TO A 150mm DEPTH

WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works.
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REVISION	DATE	DESIGN	APPD
E EXTRA LEVELS ADDED	29.02.12	CB/CB	JG
D VEHICLE CROSSING FOR LOT 916 AMENDED	07.02.11	CB/CB	JG
C ROAD NAMES AMENDED	16.11.11	CB/AH	JG
B COUNCIL AMENDMENTS	29.07.11	CB/CB	JG
A ISSUED TO COUNCIL FOR APPROVAL	30.06.11	CB/CB	JG

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 LEOPOLD
 Principal
 Leopold Property Development Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

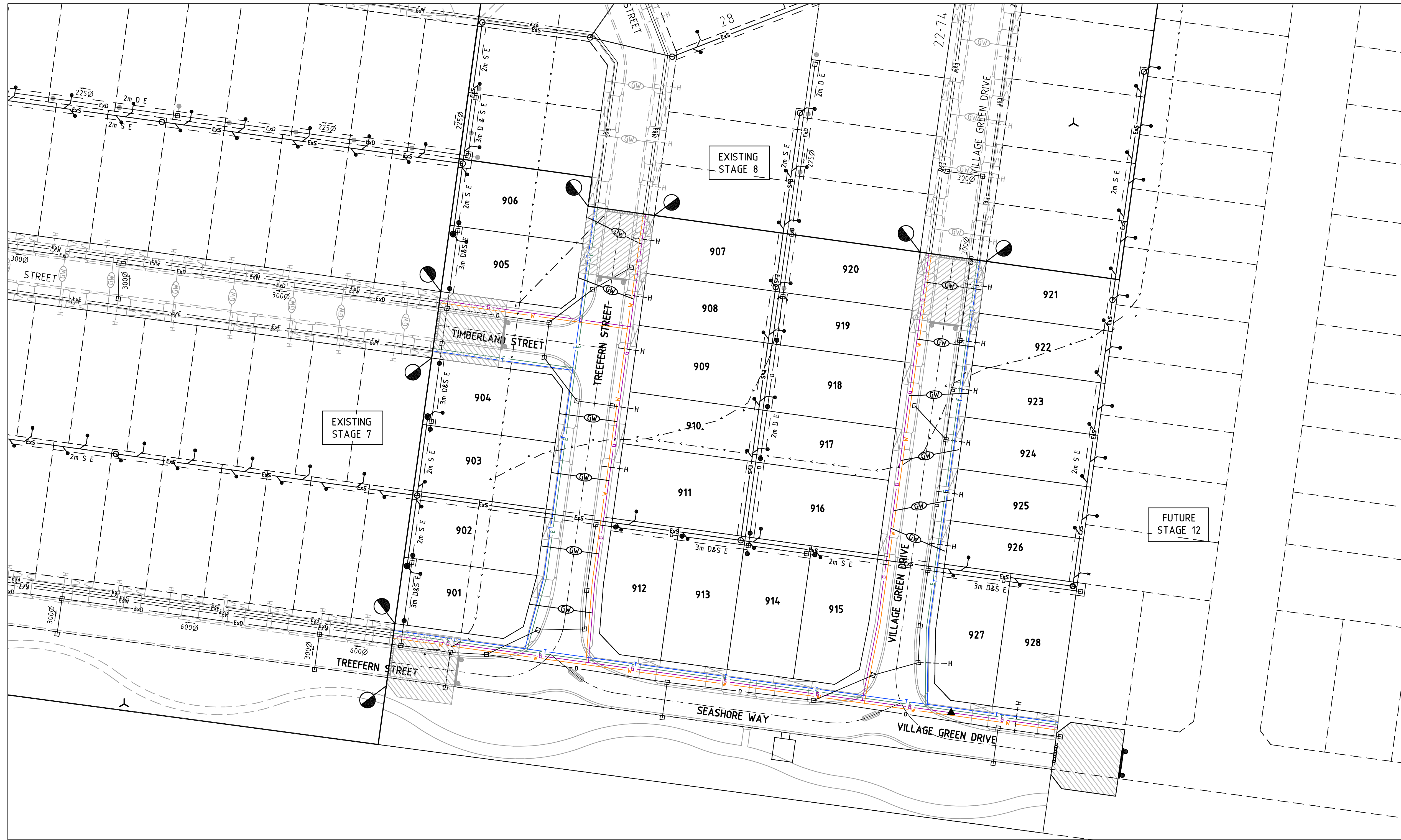
Designed
C. Barker
 Drawn
C. Barker
 Checked
C. Birckett
 Authorised
J. Golden
 Date
June 2011



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Estuary
 Stage 9
 City Of Greater Geelong
 Roadworks and Drainage
 Layout Plan
 Drawing No. 0250EHL-09-03 Rev E
 Sheet No. 3 of 21
 Approved for Construction



- LEGEND - FUNCTIONAL LAYOUT PLAN**
- E — ELECTRICITY (UNDERGROUND)
 - G — GAS
 - T — TELSTRA
 - W — WATER
 - — STORMWATER DRAIN, PIT & PROPERTY INLET
 - S — SWALE DRAIN
 - — SEWER & MAINTENANCE STRUCTURES
 - H — HOUSE DRAIN
 - GW — SERVICE CONDUITS
 - ▨ — TACTILE PAVERS
 - Ex E — EXISTING ELECTRICITY (UNDERGROUND)
 - Ex T — EXISTING TELSTRA
 - Ex G — EXISTING GAS
 - Ex W — EXISTING WATER
 - Ex D — EXISTING STORMWATER DRAIN
 - Ex S — EXISTING SEWER
 - Ex H — EXISTING HOUSE DRAIN
 - Ex S — EXISTING SWALE DRAIN
 - — — — — ZERO LOT LINES
 - ▨ — PAVEMENT TREATMENT
 - — DIRECTION OF FALL
 - — OVERLAND FLOW
 - — — — — ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
 - — — — — CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
 - — LIMIT OF WORKS
 - ⊗ — EXISTING TREE TO BE REMOVED

ROAD NAME	SERVICES OFFSET SCHEDULE							
	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREFERN STREET E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
VILLAGE GREEN DRIVE E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
TREFERN STREET	EAST	2.10	EAST	2.70	EAST	2.30	EAST	1.70
VILLAGE GREEN DRIVE	WEST	2.10	WEST	2.70	EAST	2.30	EAST	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
SEASHORE WAY	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70

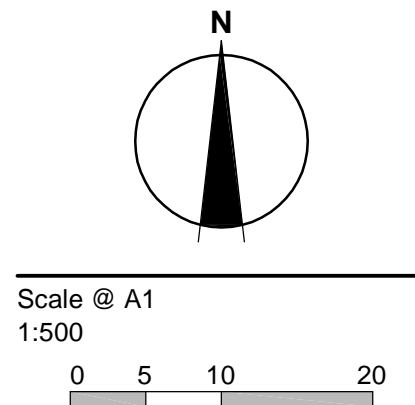
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 The locations of underground services are approximate only and their exact position should be proven on site.
 No guarantee is given that all existing services are shown.
 Locate all underground services before commencement of works
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REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

estuary leopard
 Principal
 Leopold Property Development Pty Ltd
 Level 1, 6 Riverside Quay
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Designed
C. Barker
 Drawn
C. Barker
 Checked
C. Birckett
 Authorised
J. Golden
 Date
June 2011



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Estuary
 Stage 9
 City Of Greater Geelong
 Roadworks and Drainage
 Services Layout Plan

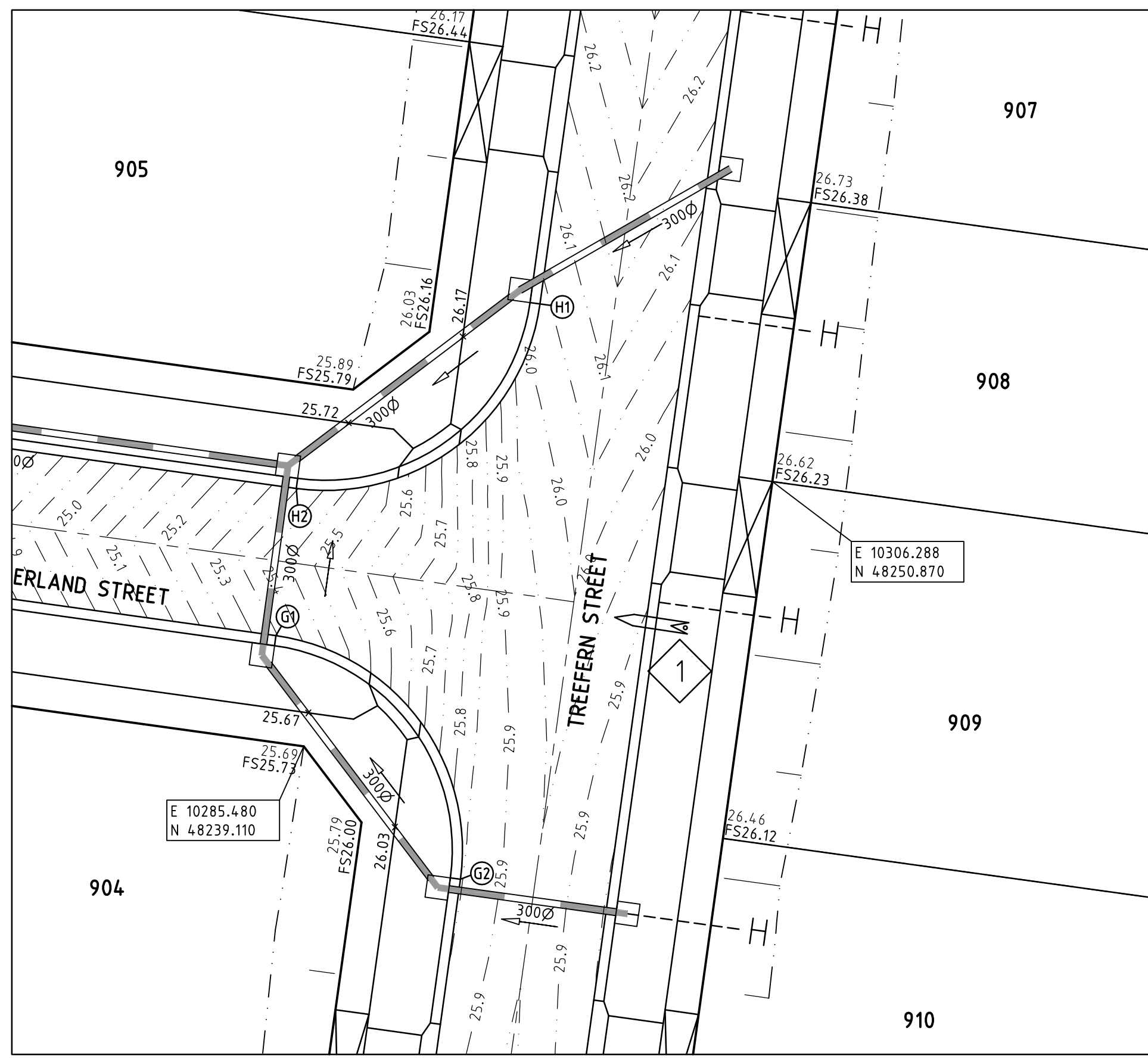
Drawing No. 0250EHL-09-04 **Rev C**
 Sheet No. 4 of 21

Approved for Construction

LEGEND - INTERSECTION PLAN

- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- TACTILE PAVERS
- EXISTING HOUSE DRAIN
- RETAINING WALL
- PAVEMENT TREATMENT
- CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- PROPOSED DRIVEWAY

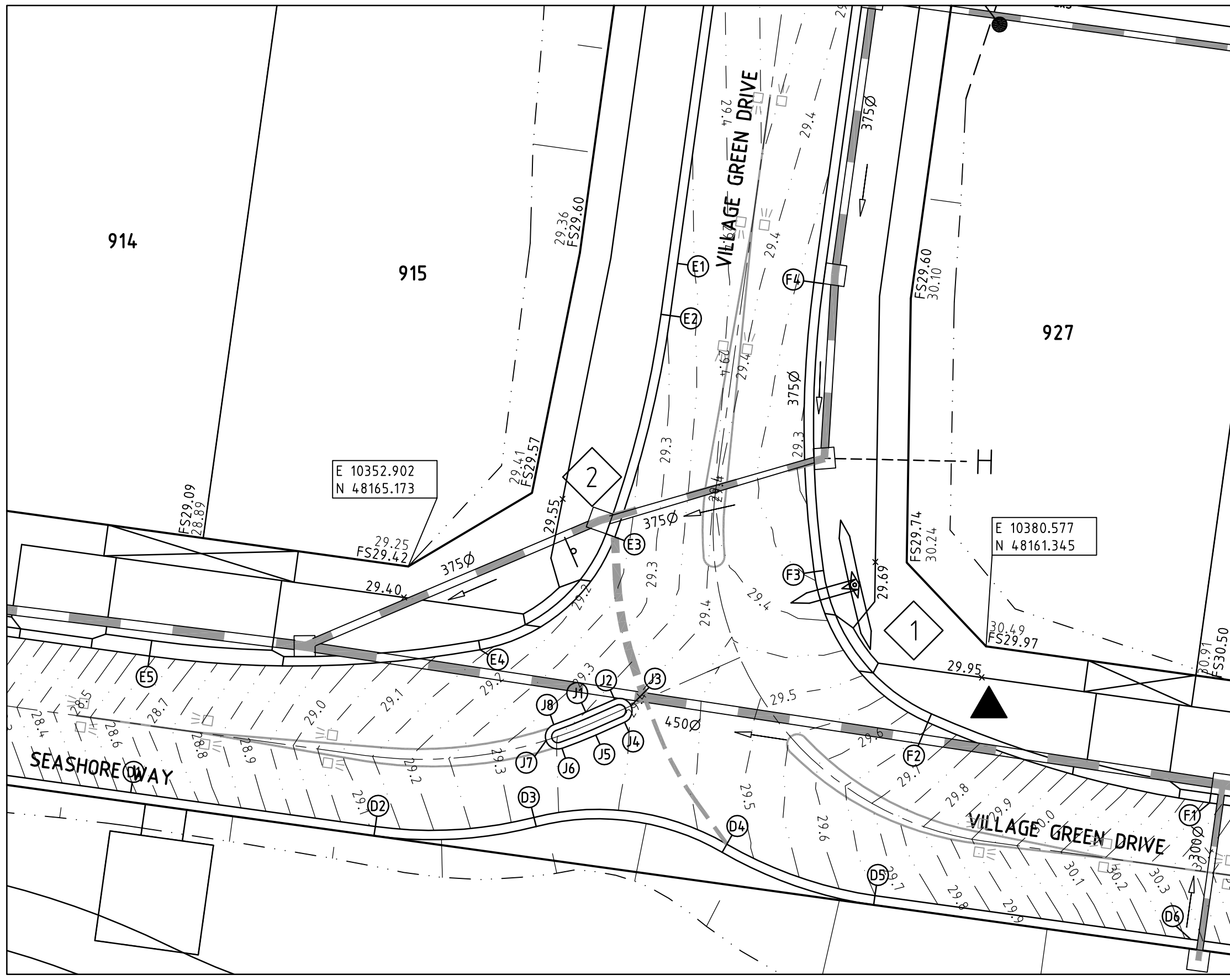
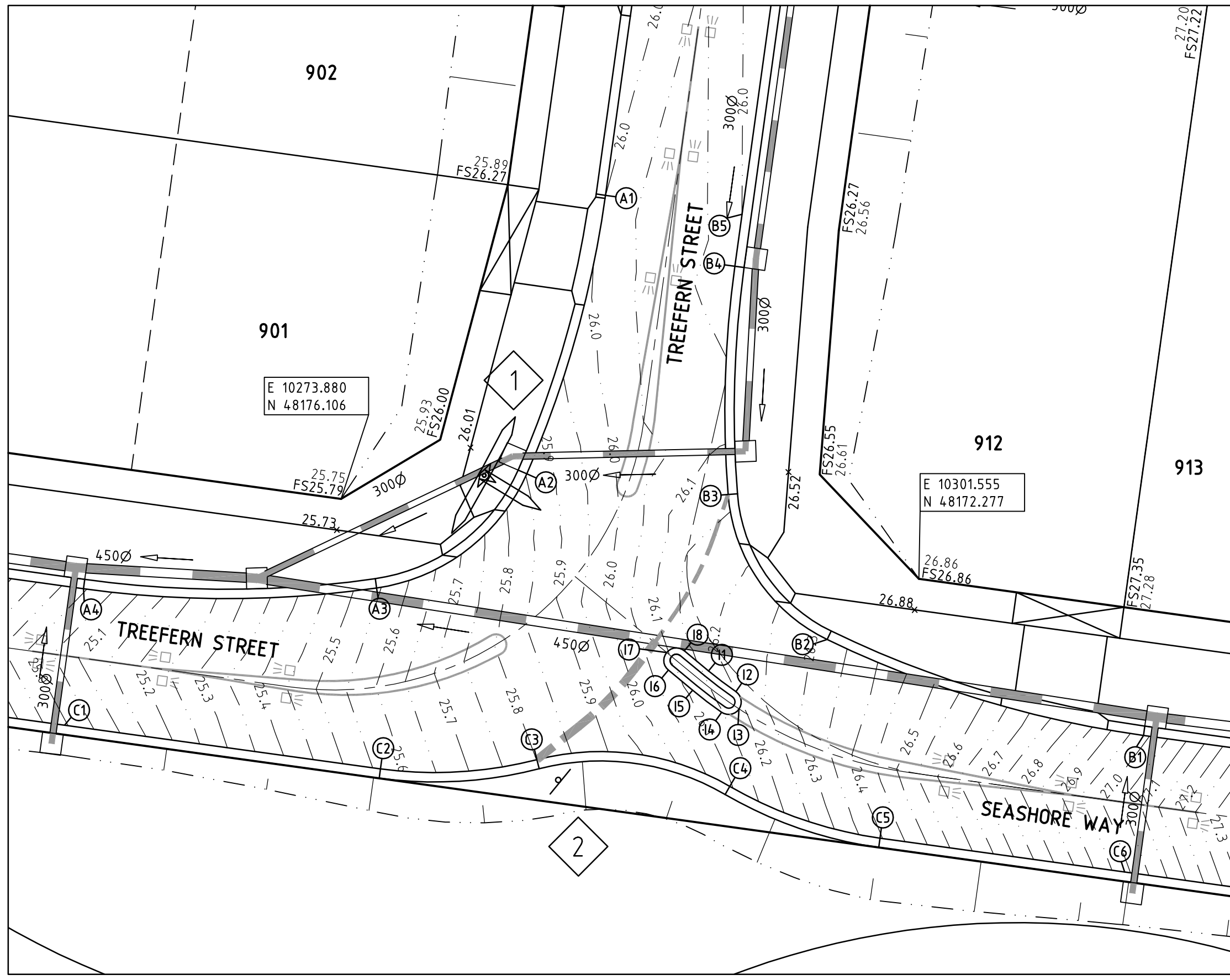
WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site.
 No guarantee is given that all existing services are shown. Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
 www.1100.com.au



SIGN SCHEDULE

SIGN	REF
	1
STREET SIGN	
	2
	R1-2

NOTES
 1. REFER TO SHEET No's 6 - 7 FOR LIP PROFILES.
 2. REFER TO SHEET No 8 FOR SETOUT INFORMATION.
 3. LINE MARKING WITH RRPMS AT MAX 6m SPACING.

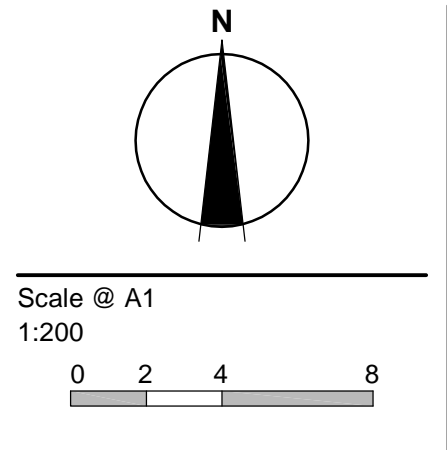


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REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

estuary
 LEOPOLD
 Principal
 Leopold Property Development Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
C. Barker
 Drawn
C. Barker
 Checked
C. Birckett
 Authorised
J. Golden
 Date
June 2011

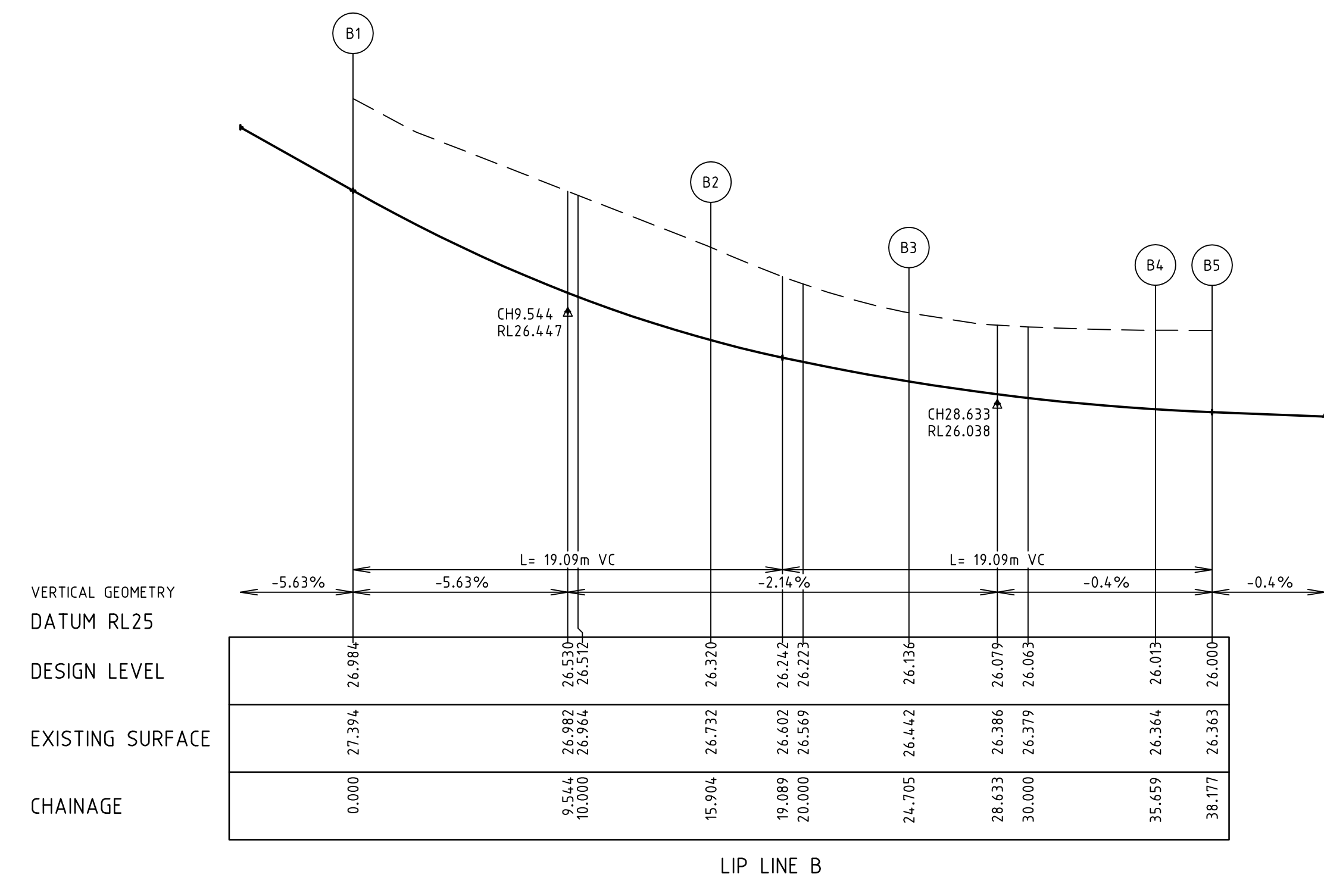
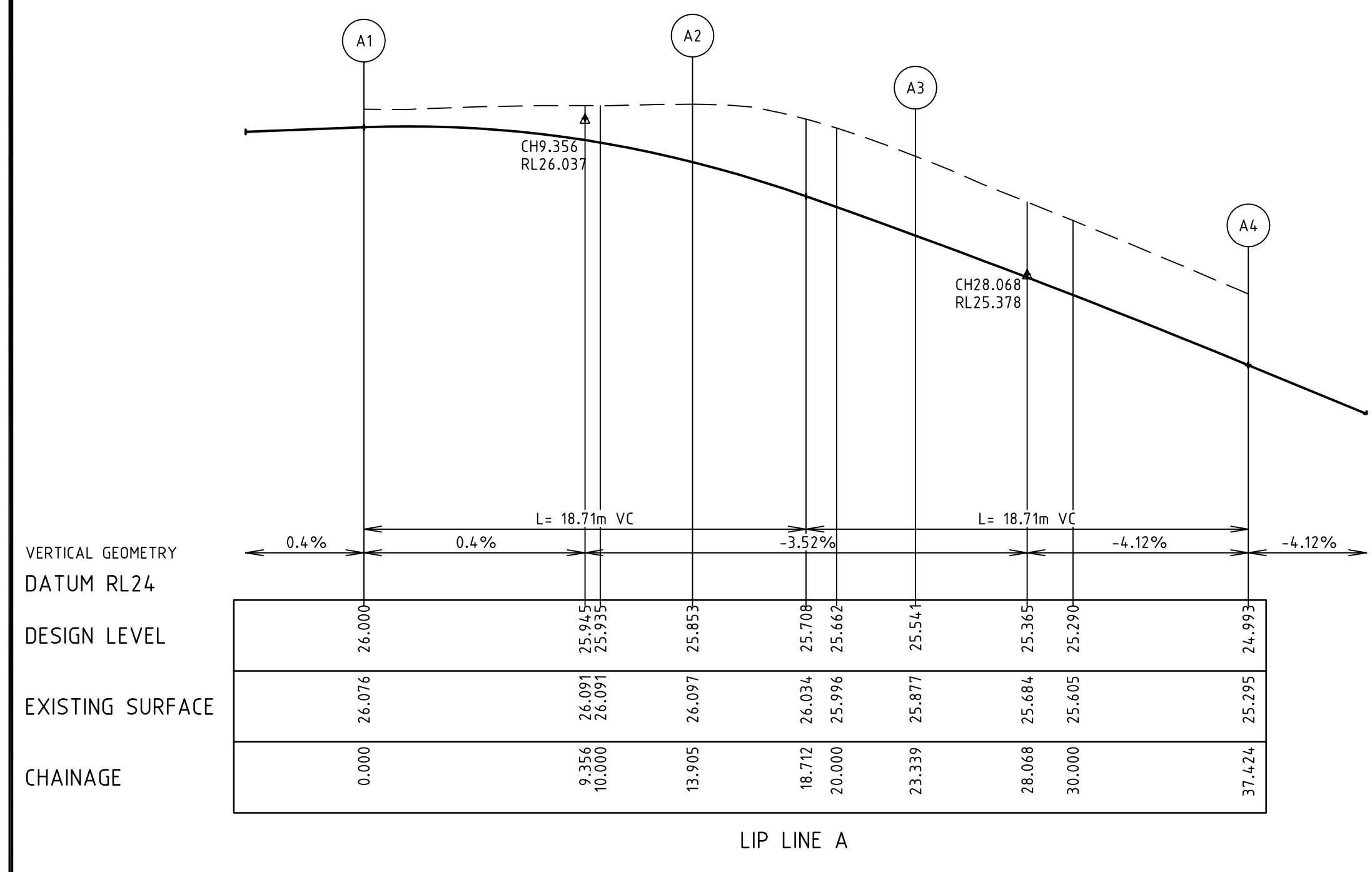


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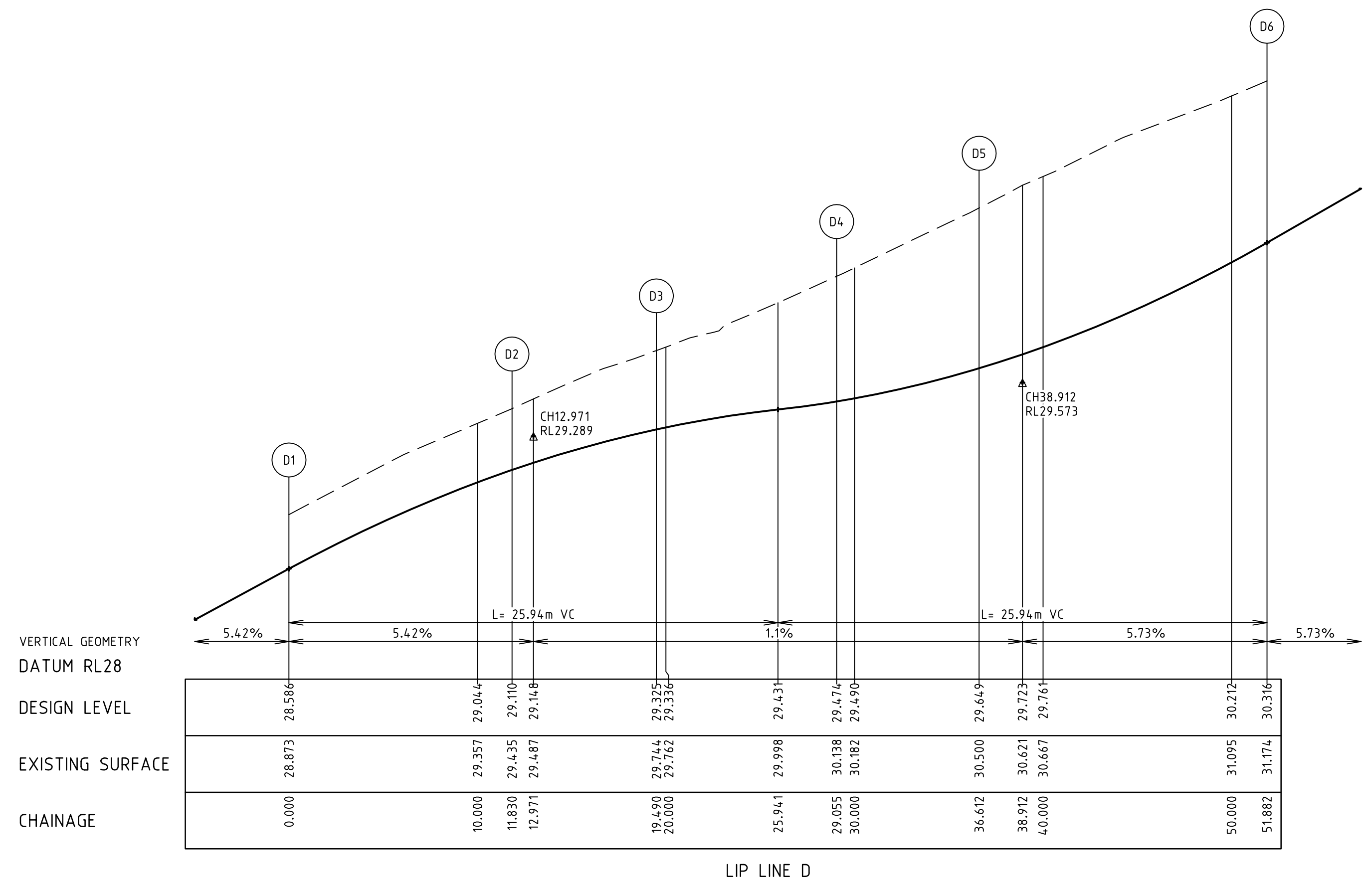
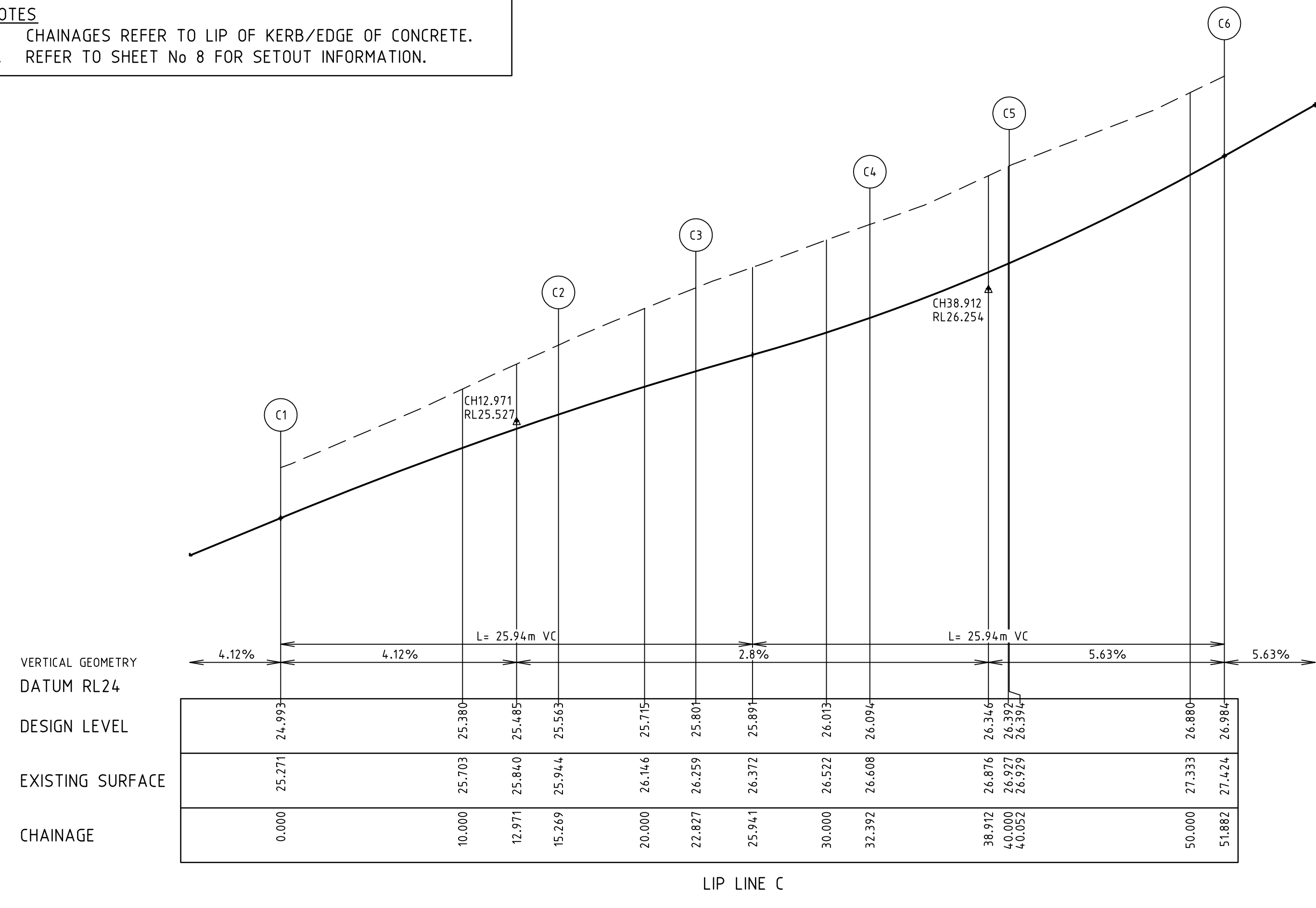
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Estuary
 Stage 9
 City of Greater Geelong
 Roadworks and Drainage
 Intersection Detail Plan
Drawing No. 0250EHL-09-05 **Rev C**
 Sheet No. 5 of 21
Approved for Construction

LEGEND
 --- EXISTING SURFACE
 ——— DESIGN LINE
 - - - FUTURE DESIGN LINE



NOTES
 1. CHAINAGES REFER TO LIP OF KERB/EDGE OF CONCRETE.
 2. REFER TO SHEET No 8 FOR SETOUT INFORMATION.



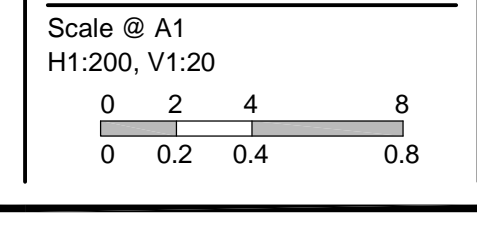
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REVISION	DATE	DES/DFE	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

estuary
LEOPOLD

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
C. Barker
Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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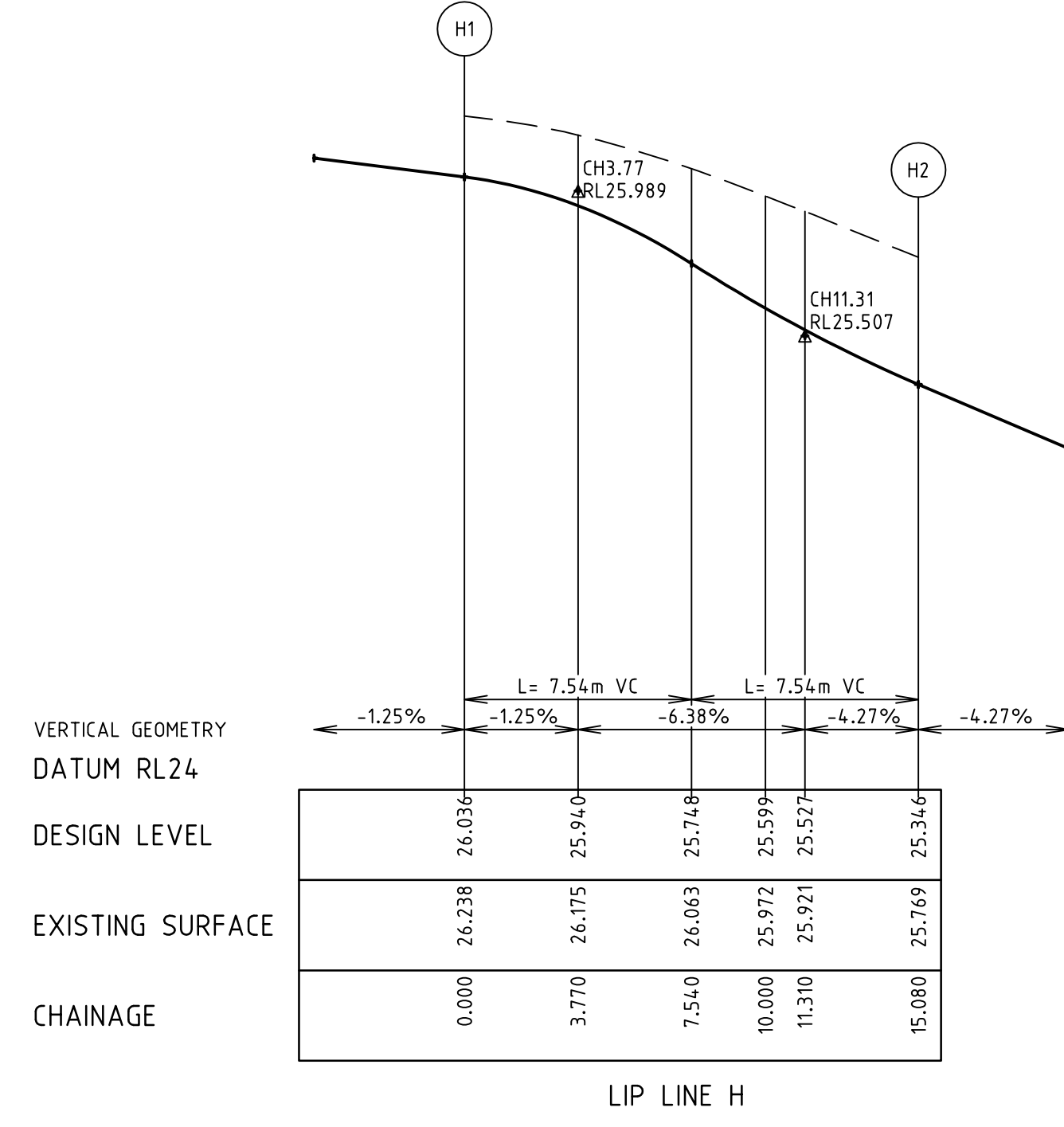
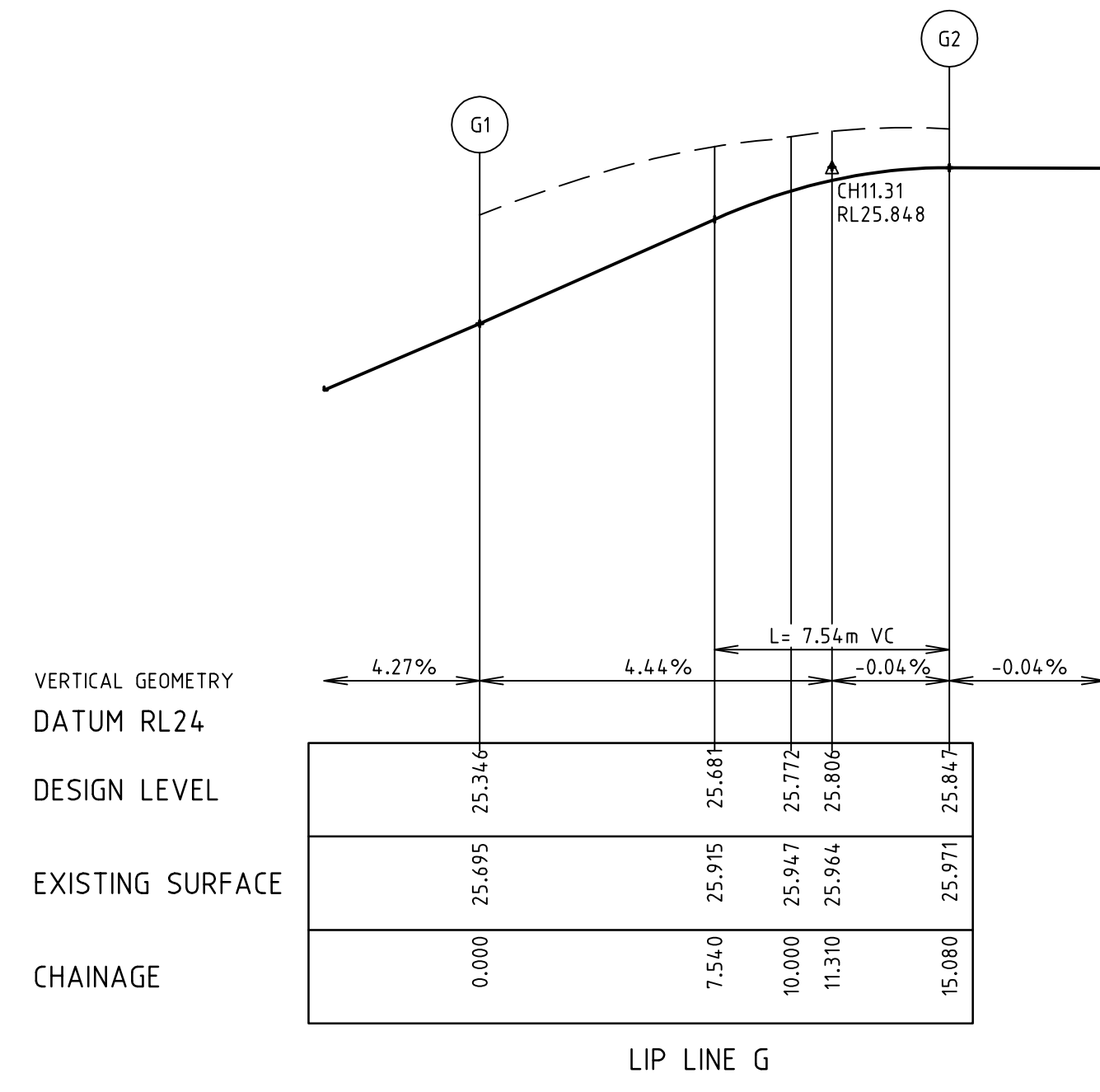
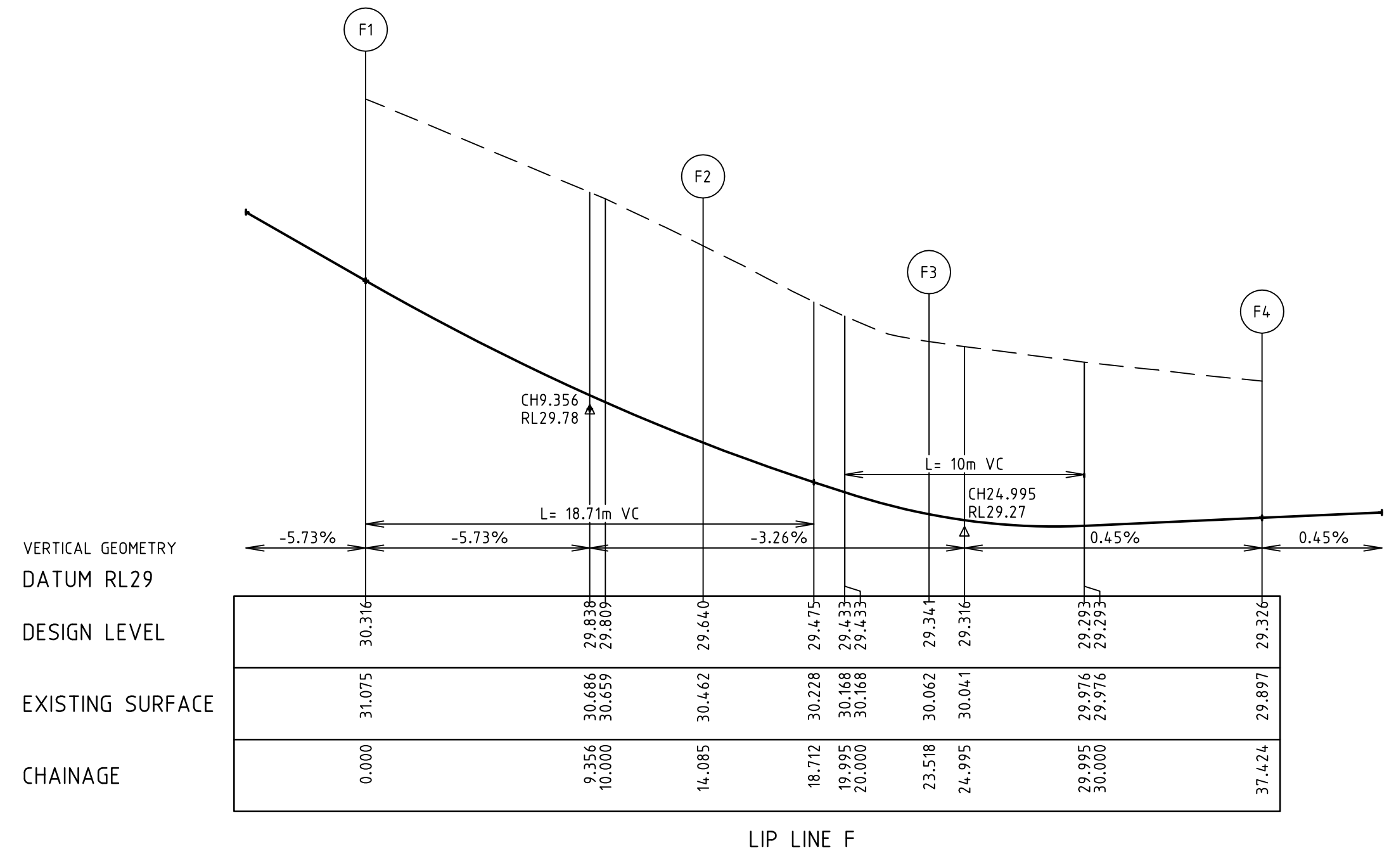
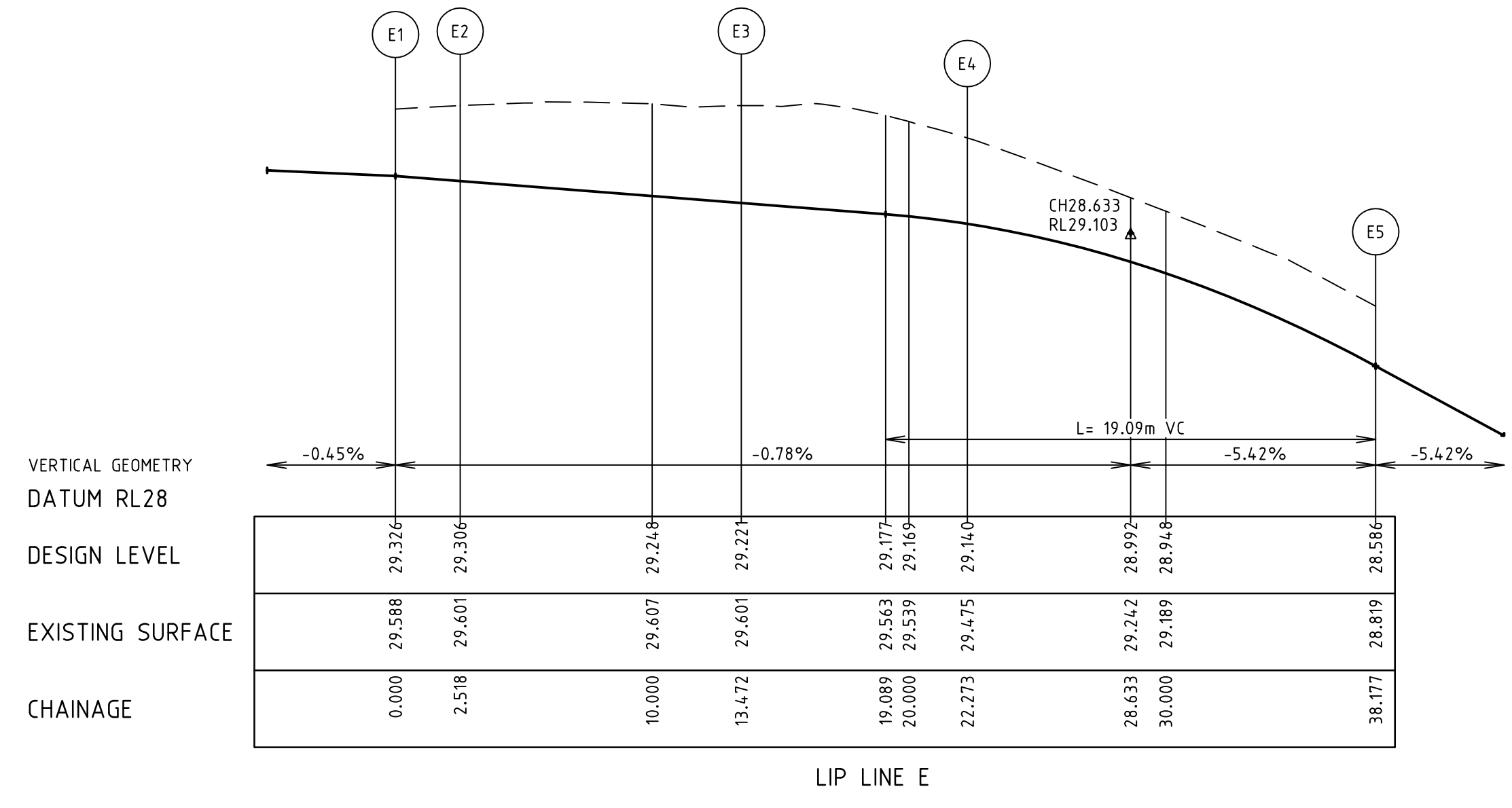
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Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Cairns +61 2 6126 1900 Darwin +61 3 5173 0100

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Lip Profiles - 1

Drawing No. 0250EHL-09-06 **Rev C**
Sheet No. 6 of 21

Approved for Construction

---	EXISTING SURFACE
—	DESIGN LINE
- - -	FUTURE DESIGN LINE

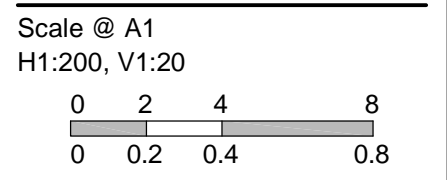


NOTES
 1. CHAINAGES REFER TO LIP OF KERB/EDGE OF CONCRETE.
 2. REFER TO SHEET No 8 FOR SETOUT INFORMATION.

REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG



Designed
C. Barker
 Drawn
C. Barker
 Checked
C. Birkett
 Authorised
J. Golden
 Date
June 2011



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Estuary
 Stage 9
 City Of Greater Geelong
 Roadworks and Drainage
 Lip Profiles - 2

Drawing No. 0250EHL-09-07 **Rev C**
 Sheet No. 7 of 21

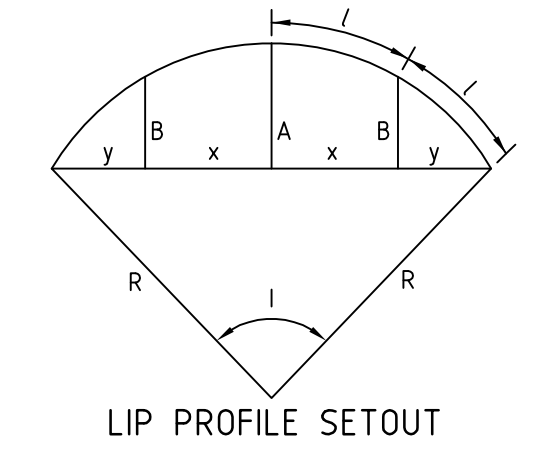
Approved for Construction

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ALIGNMENT A				ALIGNMENT B				ALIGNMENT C				ALIGNMENT D				ALIGNMENT E				ALIGNMENT F				ALIGNMENT G				ALIGNMENT H				ALIGNMENT I				ALIGNMENT J								
POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL	POINT NO	EASTING	NORTHING	RL									
A1	10286.549	48190.644	26.000	B1	10312.319	48164.781	26.984	C1	10260.638	48165.268	24.993	D1	10339.603	48154.344	28.586	E1	10365.794	48179.681	29.326	F1	10391.284	48153.857	30.316	G1	10284.242	48244.026	25.346	H1	10295.972	48258.758	26.036	I1	10291.483	48167.871	26.017	J1	10361.400	48158.198						
A2	10282.775	48177.307	25.853	B2	10297.160	48169.373	26.320	C2	10275.763	48163.176	25.565	D2	10351.321	48152.722	29.110	E2	10365.449	48177.186	29.306	F2	10377.781	48157.703	29.640	G2	10292.436	48233.201	25.847	H2	10285.147	48250.564	25.346	I2	10292.791	48166.877	0.176	J2	10362.779	48158.808						
A3	10275.582	48171.841	25.541	B3	10292.418	48176.318	26.136	C3	10283.261	48163.623	25.801	D3	10358.921	48153.156	29.325	E3	10362.793	48166.582	29.221	F3	10372.342	48164.915	29.341	G1-G2	90.000	9.600	15.080	H1-H2	90.000	9.600	15.080	I3	10292.942	48166.042	0.176									
A4	10261.543	48171.806	24.993	B4	10292.741	48187.245	26.013	C4	10292.500	48162.345	26.094	D4	10368.159	48151.877	29.474	E4	10356.344	48161.186	29.140	G1-G2	90.000	9.600	15.080	H1-H2	90.000	9.600	15.080	I4	10292.106	48165.892	0.176													
				B5	10293.086	48189.740	26.000	C5	10299.696	48159.865	26.394	D5	10375.253	48149.412	29.649	E5	10340.507	48160.881	28.586																									
								C6	10311.414	48158.243	26.984	D6	10390.379	48147.319	30.316																													

SEASHORE WAY DESIGN LINE												TREE Fern STREET DESIGN LINE											
CHAINAGE	EASTING	NORTHING	BEARING	CHAINAGE	EASTING	NORTHING	BEARING	CHAINAGE	EASTING	NORTHING	BEARING	CHAINAGE	EASTING	NORTHING	BEARING	CHAINAGE	EASTING	NORTHING	BEARING				
0.000	10285.087	48172.389	129°38'12"	428.432	10246.716	48170.526	97°52'36"	0.000	10285.087	48172.389	129°38'12"	428.432	10246.716	48170.526	97°52'36"	0.000	10285.087	48172.389	129°38'12"				
7.808	10291.100	48167.409	129°38'12"	453.432	10271.480	48167.100	97°52'36"	7.808	10291.100	48167.409	129°38'12"	7.808	10291.100	48167.409	129°38'12"	18.894	10301.117	48162.999	97°52'36"				
18.894	10301.117	48162.999	97°52'36"					18.894	10301.117	48162.999	97°52'36"					18.894	10301.117	48162.999	97°52'36"				
18.894	10301.117	48162.999	97°52'36"					18.894	10301.117	48162.999	97°52'36"					18.894	10301.117	48162.999	97°52'36"				
69.055	10350.805	48156.125	97°52'36"					69.055	10350.805	48156.125	97°52'36"					69.055	10350.805	48156.125	97°52'36"				
69.055	10350.805	48156.125	97°52'36"					69.055	10350.805	48156.125	97°52'36"					69.055	10350.805	48156.125	97°52'36"				
75.000	10356.728	48156.191	80°50'39"					75.000	10356.728	48156.191	80°50'39"					75.000	10356.728	48156.191	80°50'39"				
80.141	10361.643	48157.649	66°06'60"					80.141	10361.643	48157.649	66°06'60"					80.141	10361.643	48157.649	66°06'60"				
80.141	10361.643	48157.649	66°06'60"					80.141	10361.643	48157.649	66°06'60"					80.141	10361.643	48157.649	66°06'60"				
87.949	10368.782	48160.810	66°06'60"					87.949	10368.782	48160.810	66°06'60"					87.949	10368.782	48160.810	66°06'60"				

NOTES
 1. SETOUT CO-ORDINATES REFER TO LIP OF KERB/EDGE OF CONCRETE.
 2. REFER TO SHEET No's 6 - 7 FOR LIP PROFILES.



Designed
C. Barker

Drawn
C. Barker

Checked
C. Birkett

Authorised
J. Golden

Date
June 2011

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Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Setout Information Plan

Drawing No. 0250EHL-09-08 Rev C
Sheet No. 8 of 21

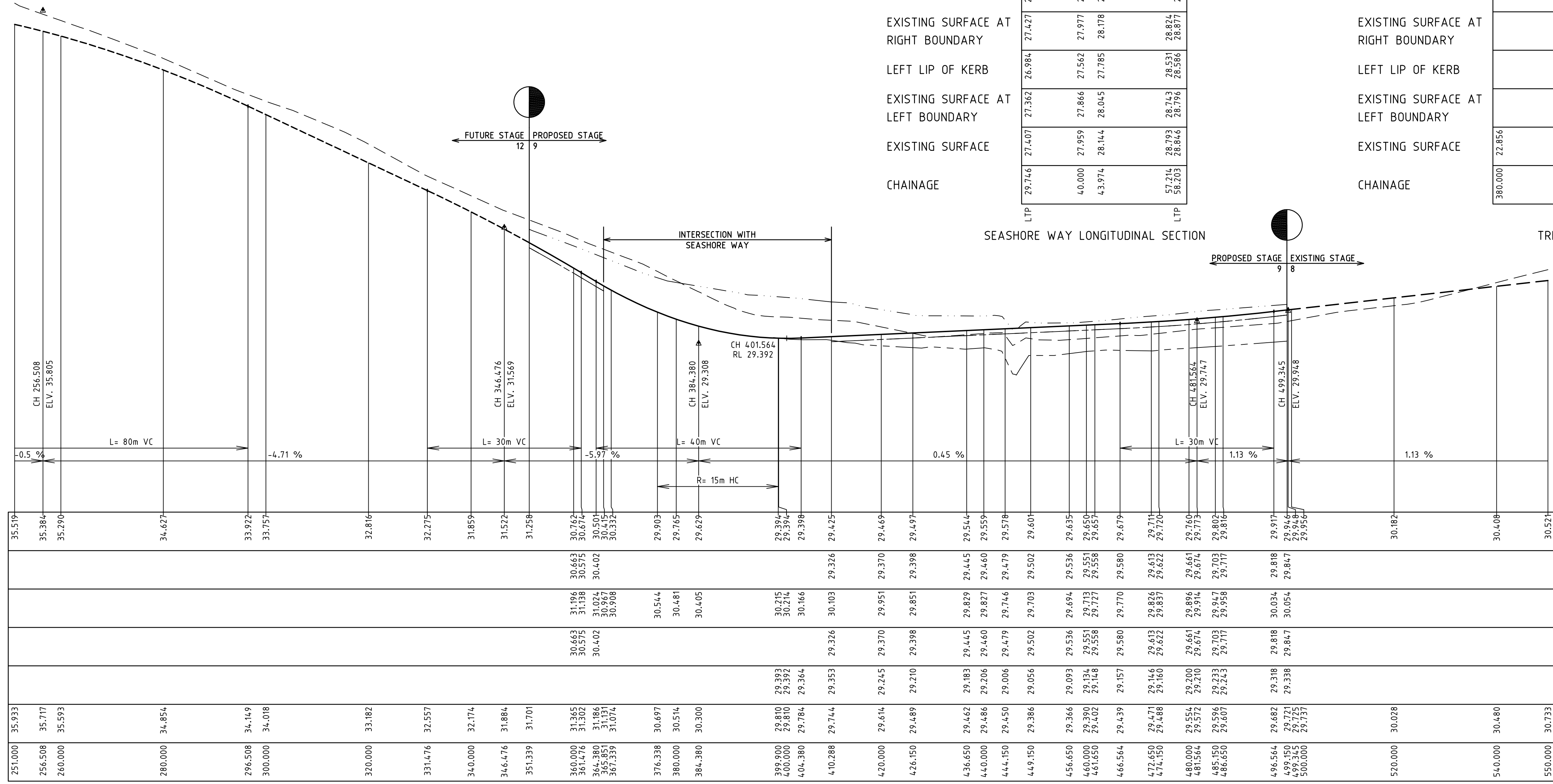
Approved for Construction

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REVISION	DATE	DES/DFR	APPD
C ROAD NAMES AMENDED	16.11.11	CB/AH	JG
B COUNCIL AMENDMENTS	29.07.11	CB/CB	JG
A ISSUED TO COUNCIL FOR APPROVAL	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

LEGEND	
	EXISTING SURFACE
	DESIGN LINE
	FUTURE DESIGN LINE
	RIGHT BUILDING LINE
	RIGHT LIP OF KERB
	LEFT BUILDING LINE
	LEFT LIP OF KERB



VILLAGE GREEN DRIVE LONGITUDINAL SECTION

VERTICAL GEOMETRY
HORIZONTAL GEOMETRY
DATUM RL24

CHAINAGE	EXISTING SURFACE	EXISTING SURFACE AT LEFT BOUNDARY	LEFT LIP OF KERB	EXISTING SURFACE AT RIGHT BOUNDARY	RIGHT LIP OF KERB	DESIGN CENTRELINE
29.746	27.407	27.362	26.984	27.427	26.984	27.083
40.000	27.959	27.866	27.562	27.977	27.562	27.061
43.974	28.144	28.045	27.785	28.178	27.785	27.884
57.214	28.793	28.743	28.531	28.824	28.531	28.630
56.203	28.846	28.796	28.586	28.877	28.586	28.685

TREEFERN STREET LONGITUDINAL SECTION

VERTICAL GEOMETRY
HORIZONTAL GEOMETRY
DATUM RL20

CHAINAGE	EXISTING SURFACE	EXISTING SURFACE AT LEFT BOUNDARY	LEFT LIP OF KERB	EXISTING SURFACE AT RIGHT BOUNDARY	RIGHT LIP OF KERB	DESIGN CENTRELINE
22.502						22.502
23.325						23.325
24.148						24.148
24.495						24.495
24.971						24.971
25.092						25.092

REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
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A	30.06.11	CB/CB	JG

estuary
LEOPOLD

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

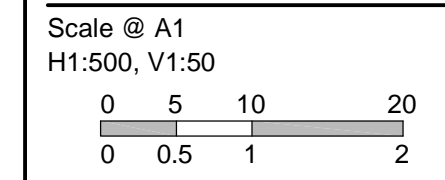
Designed
C. Barker

Drawn
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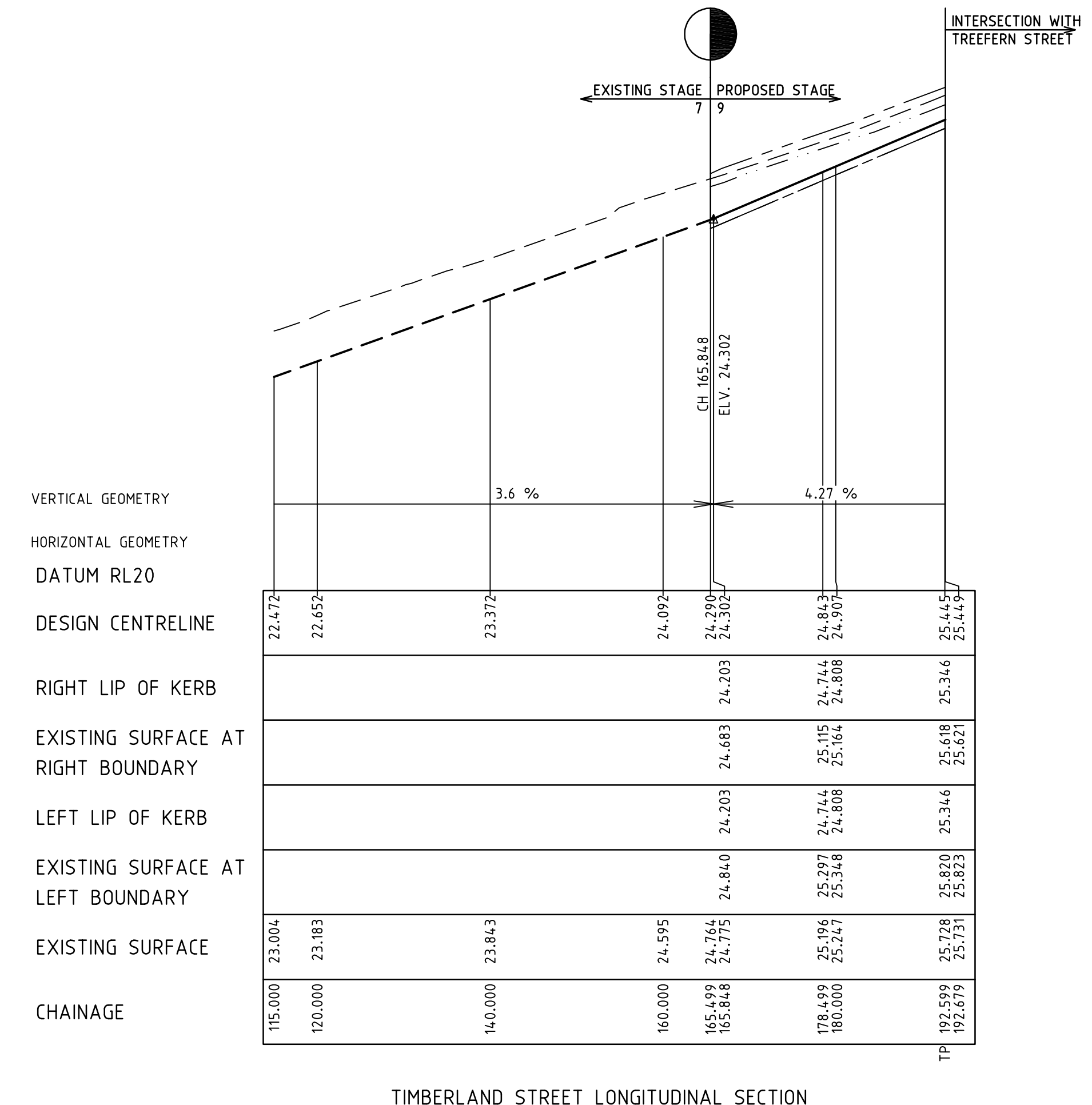
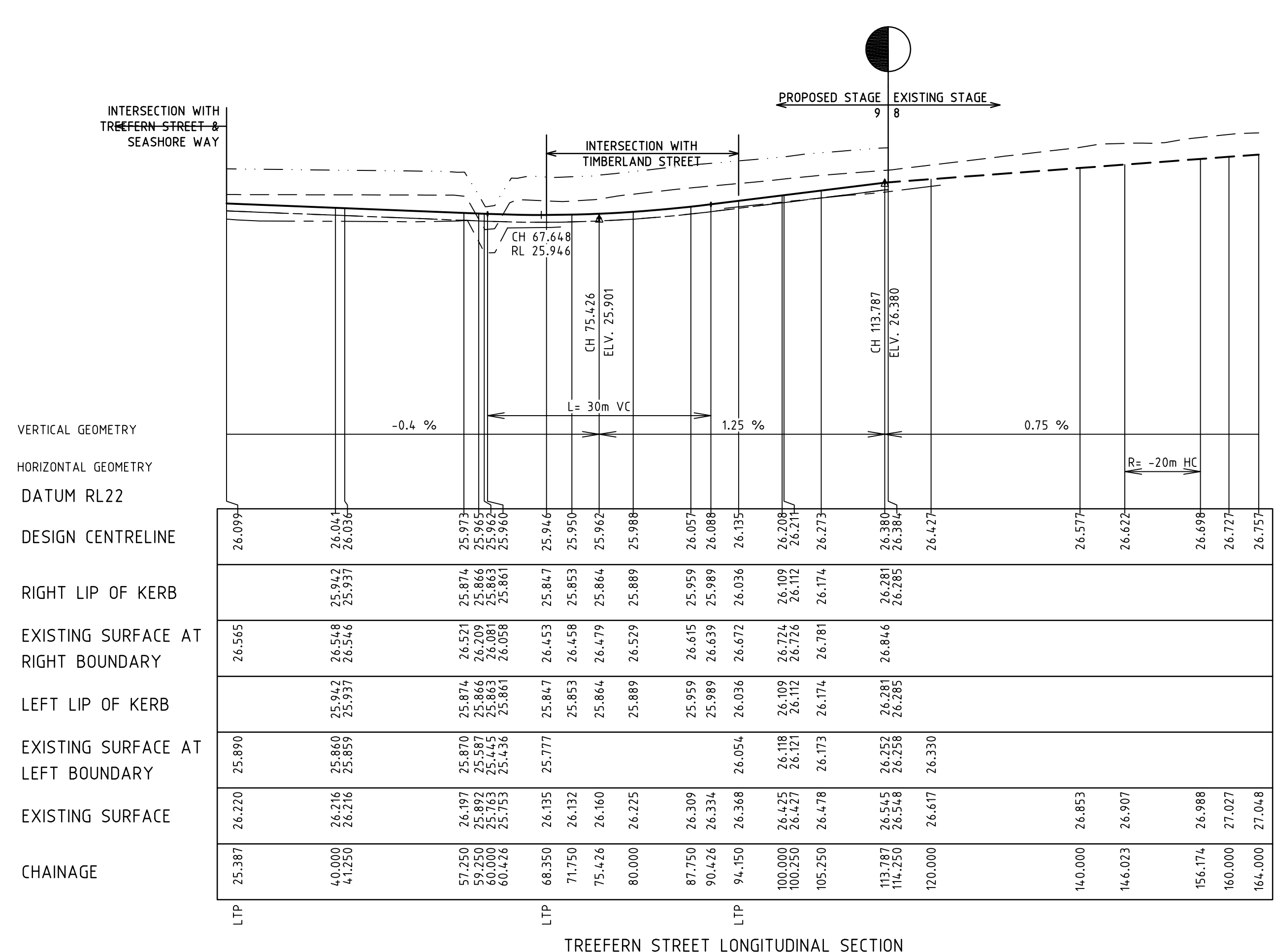
Gold Coast +61 7 5578 0222
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Perth +61 8 9479 1000

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 1

Drawing No. **0250EHL-09-09** Rev C
Sheet No. 9 of 21

Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN LINE
	FUTURE DESIGN LINE
	RIGHT BUILDING LINE
	RIGHT LIP OF KERB
	LEFT BUILDING LINE
	LEFT LIP OF KERB

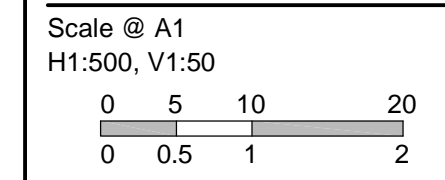


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REVISION	DATE	DES/DFT	APPD
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Taranaki +61 3 5173 0100

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 2

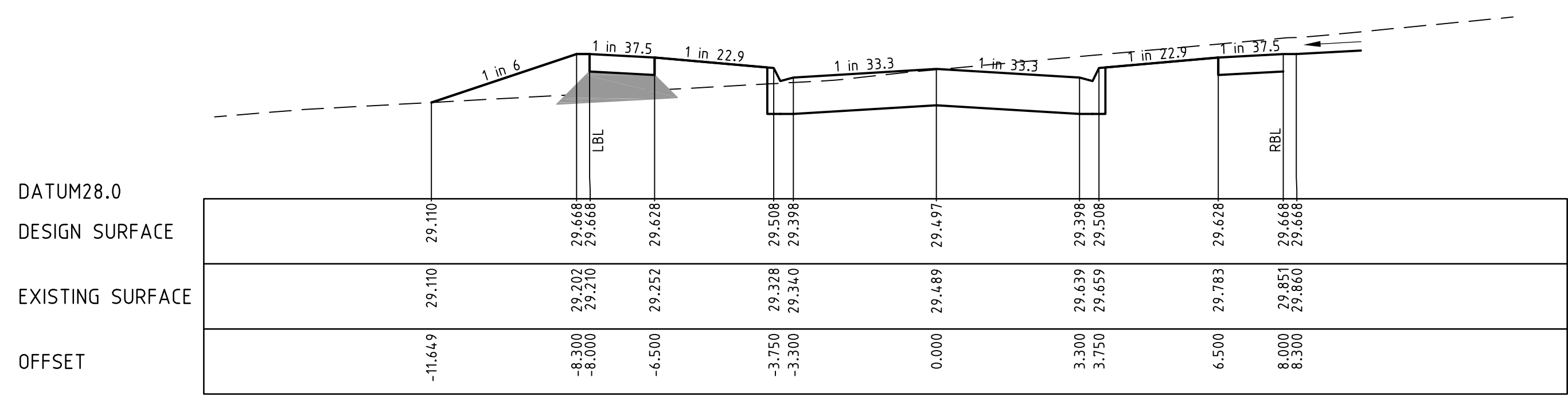
Drawing No. 0250EHL-09-10 **Rev C**

Sheet No. 10 of 21

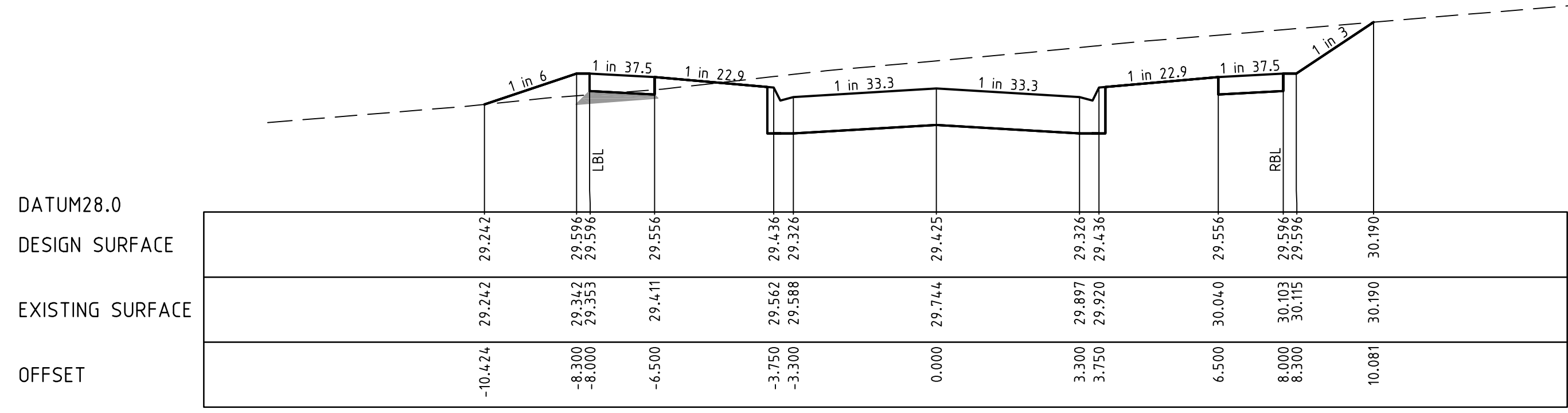
Approved for Construction

STRUCTURAL FILL REQUIRED UNDER PAVEMENT AND FOOTPATHS WHERE CONSTRUCTED ABOVE NATURAL SURFACE

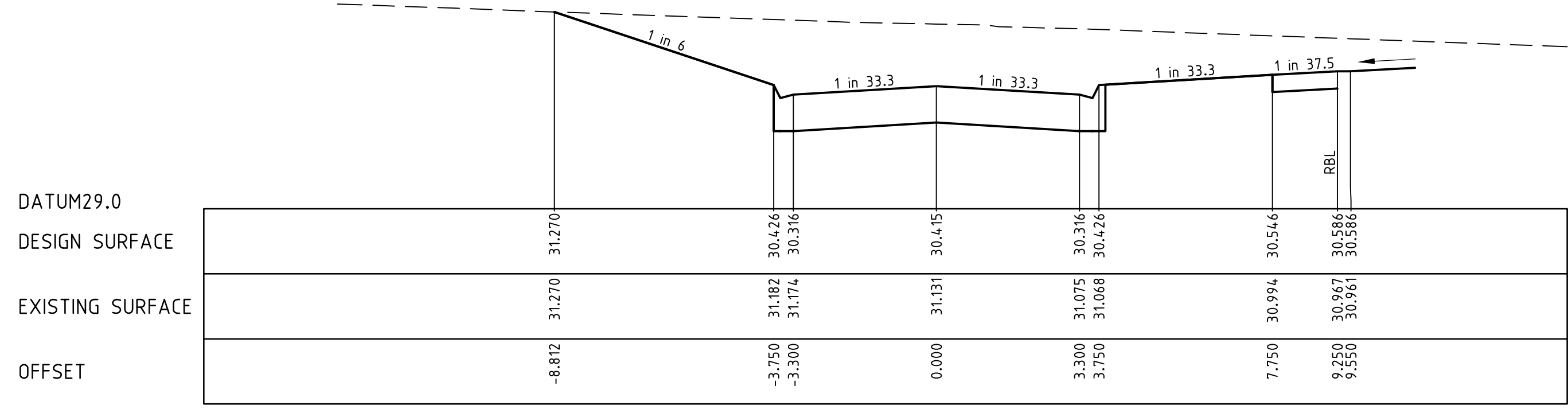
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



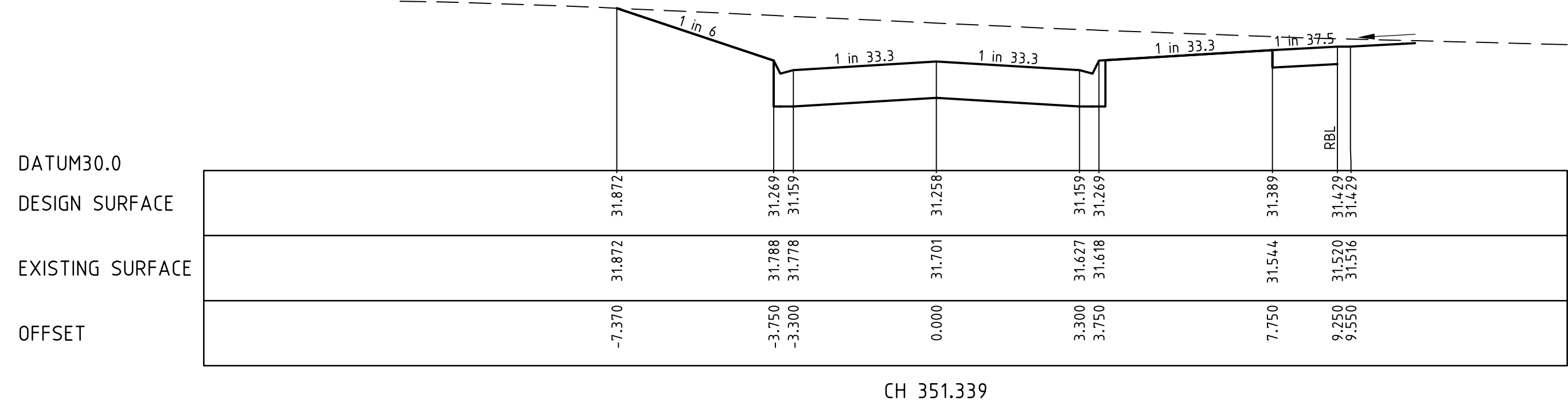
CH 426.150



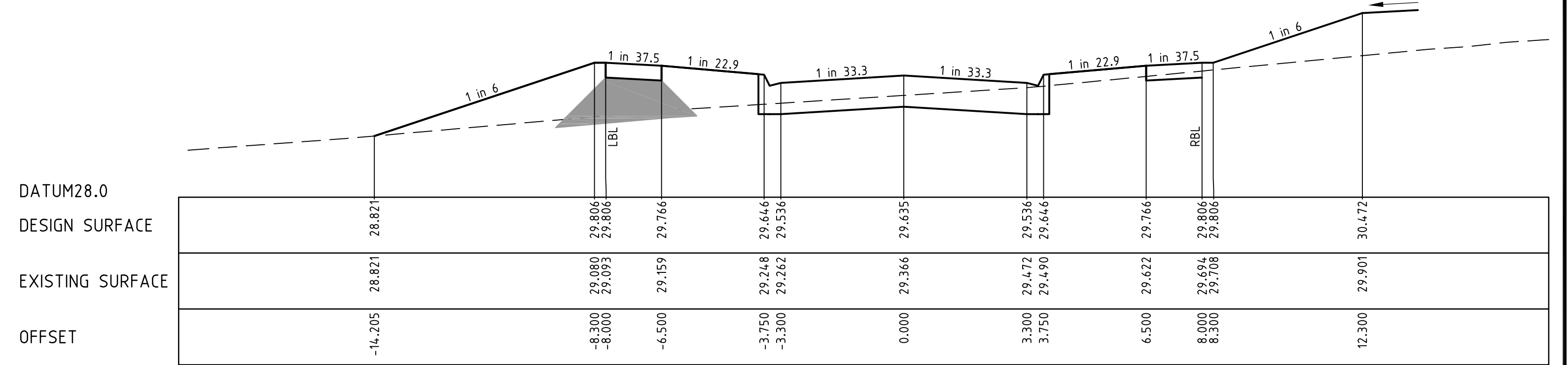
RTPCH 410.288



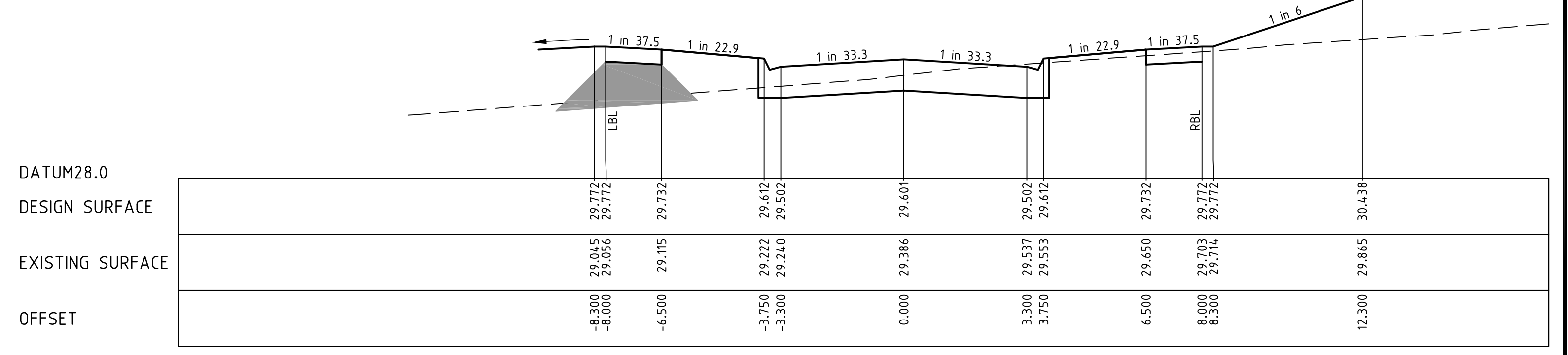
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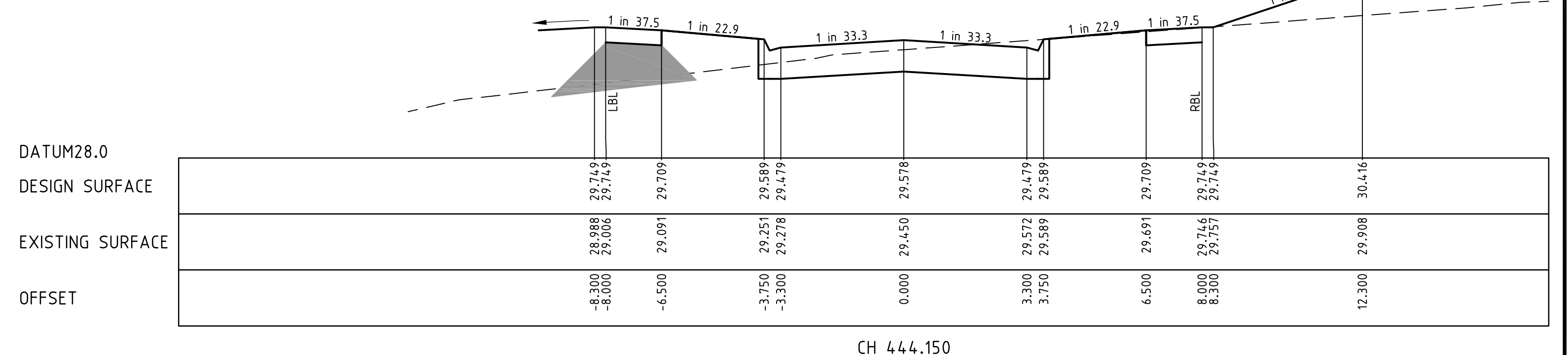
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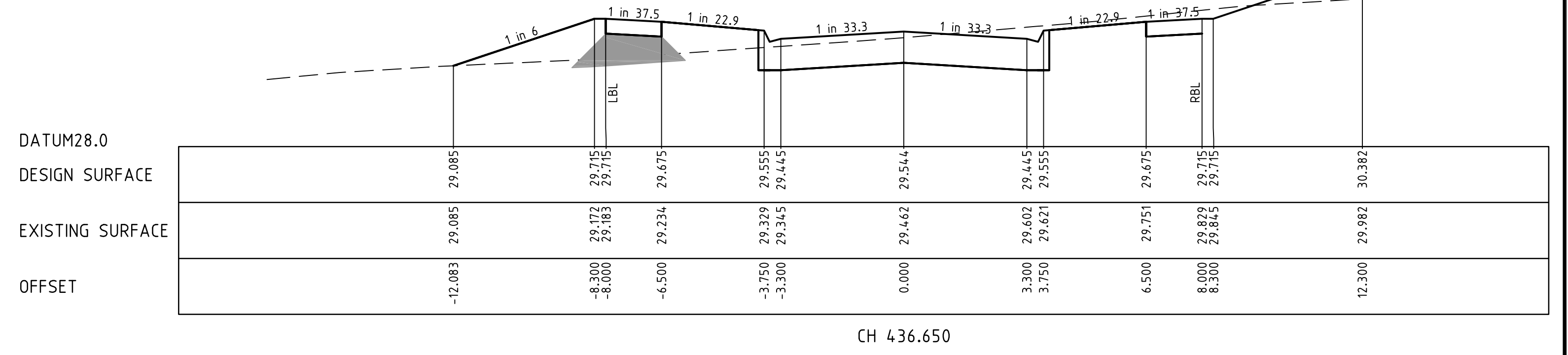
CH 456.650



CH 449.150



CH 444.150

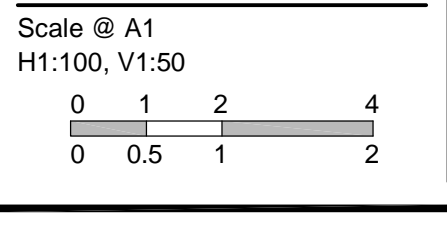


CH 436.650

REVISION	DATE	DES/DFE	APPD
C ROAD NAMES AMENDED	16.11.11	CB/AH	JG
B COUNCIL AMENDMENTS	29.07.11	CB/CB	JG
A ISSUED TO COUNCIL FOR APPROVAL	30.06.11	CB/CB	JG

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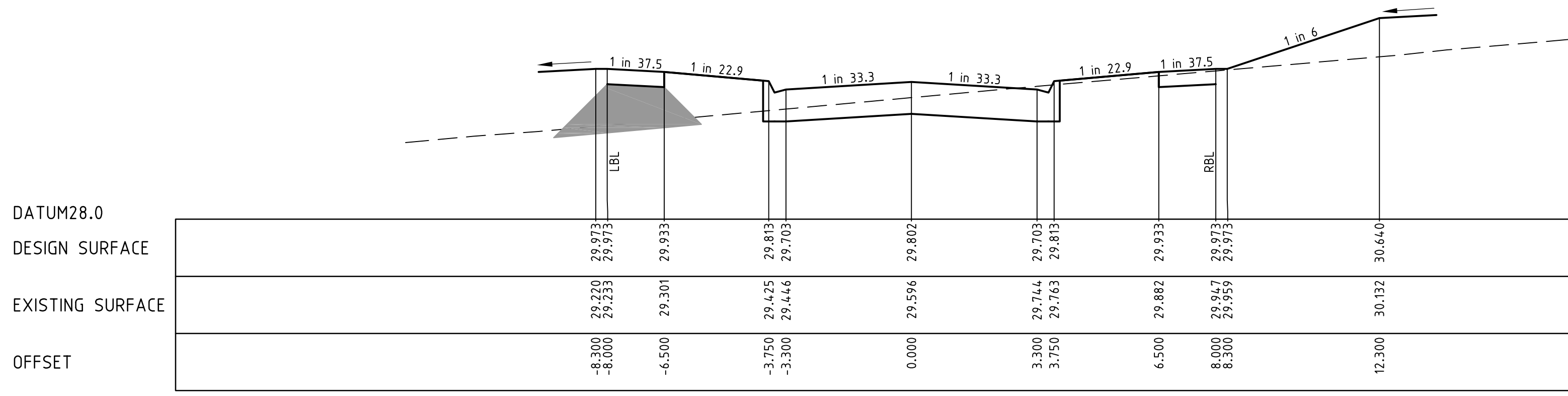
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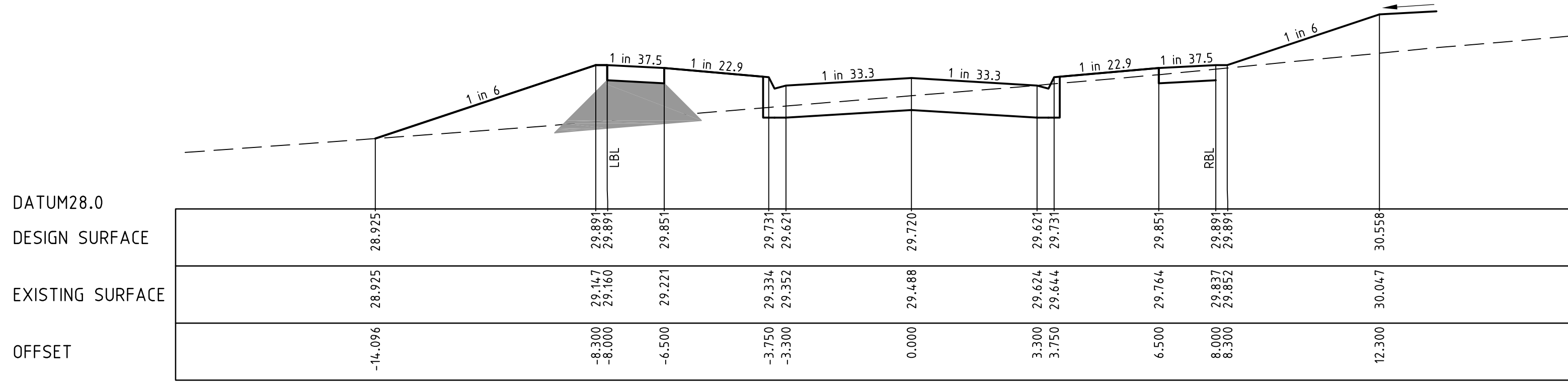
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Carlisle +61 2 8126 1900
Gold Coast +61 7 5578 0222
Melbourne +61 3 9869 0800
Perth +61 8 9479 0100

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Village Green Drive - 1
Ch 351.339 - Ch 456.650
Drawing No. 0250EHL-09-11 Rev C
Sheet No. 11 of 21
Approved for Construction

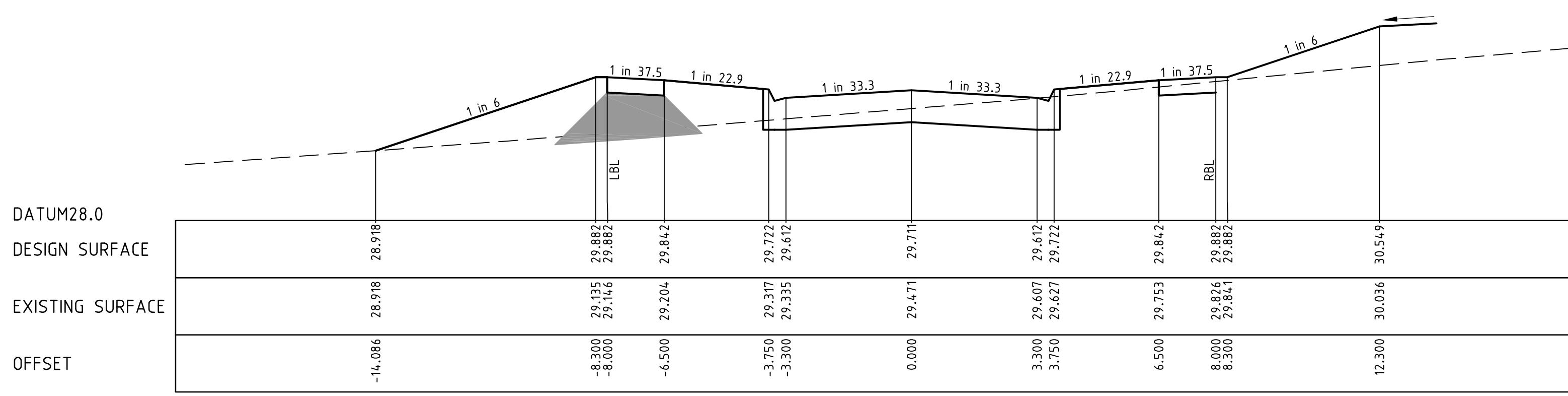
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



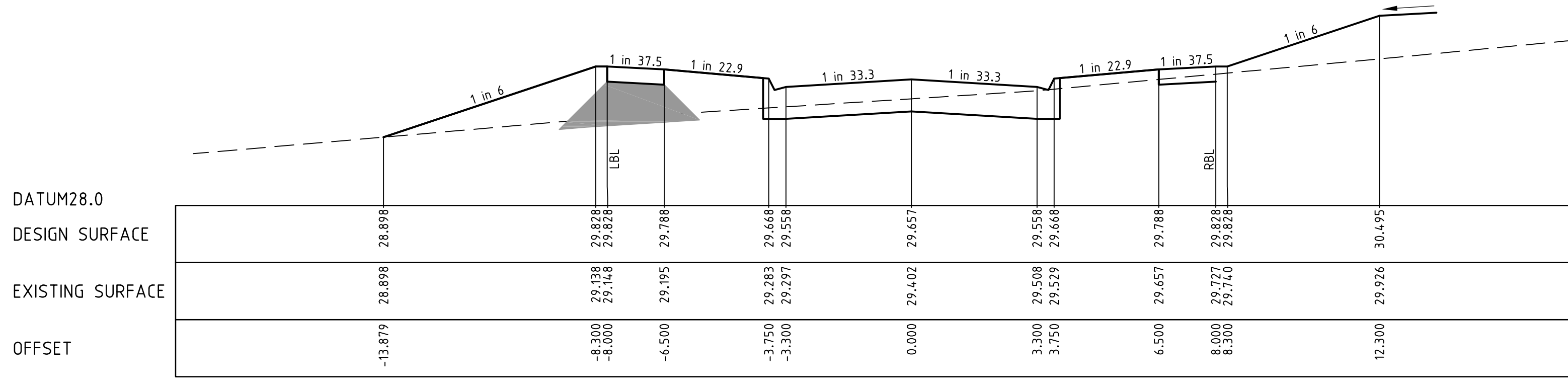
CH 485.150



CH 474.150

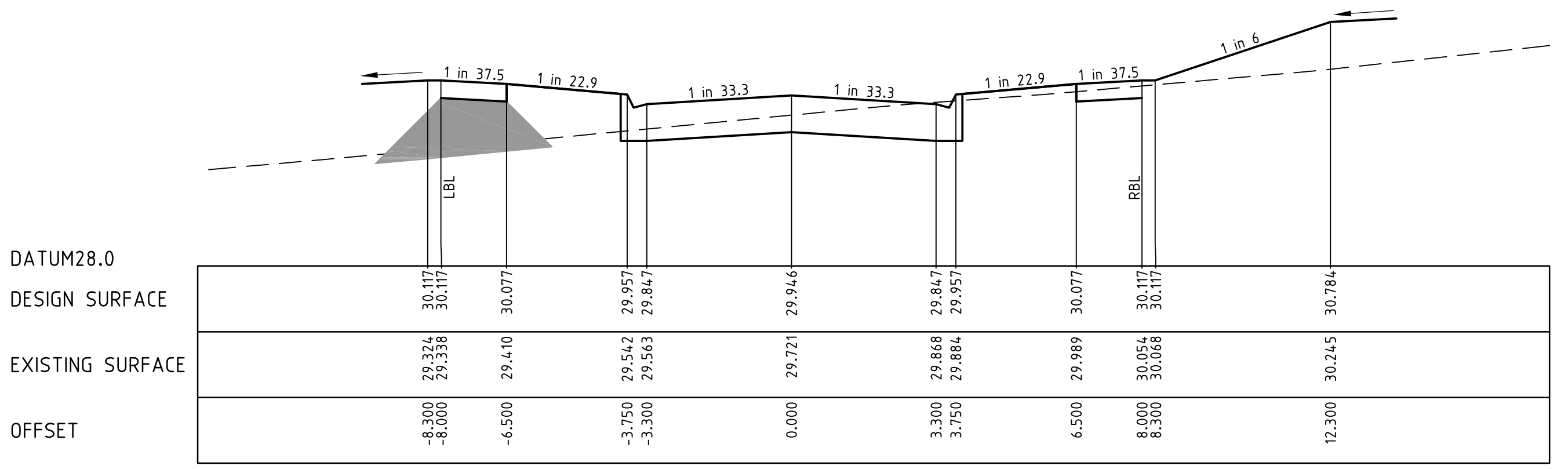


CH 472.650

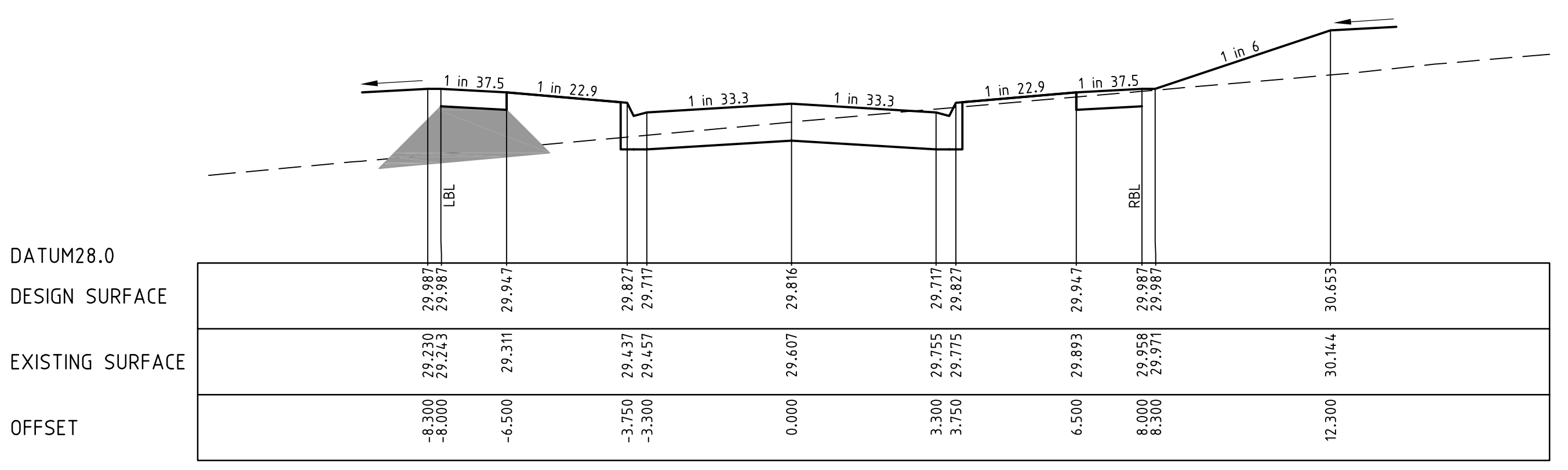


CH 461.650

STRUCTURAL FILL REQUIRED UNDER PAVEMENT AND FOOTPATHS WHERE CONSTRUCTED ABOVE NATURAL SURFACE



CH 499.150

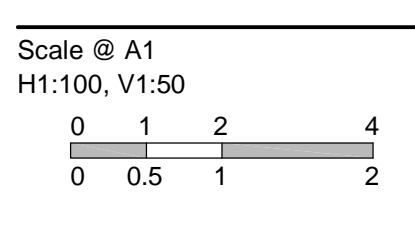


CH 486.650

REVISION	DATE	DES/DF	APPD
C ROAD NAMES AMENDED	16.11.11	CB/AH	JG
B COUNCIL AMENDMENTS	29.07.11	CB/CB	JG
A ISSUED TO COUNCIL FOR APPROVAL	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
C. Barker
Drawn
C. Barker
Checked
C. Birckett
Authorised
J. Golden
Date
June 2011



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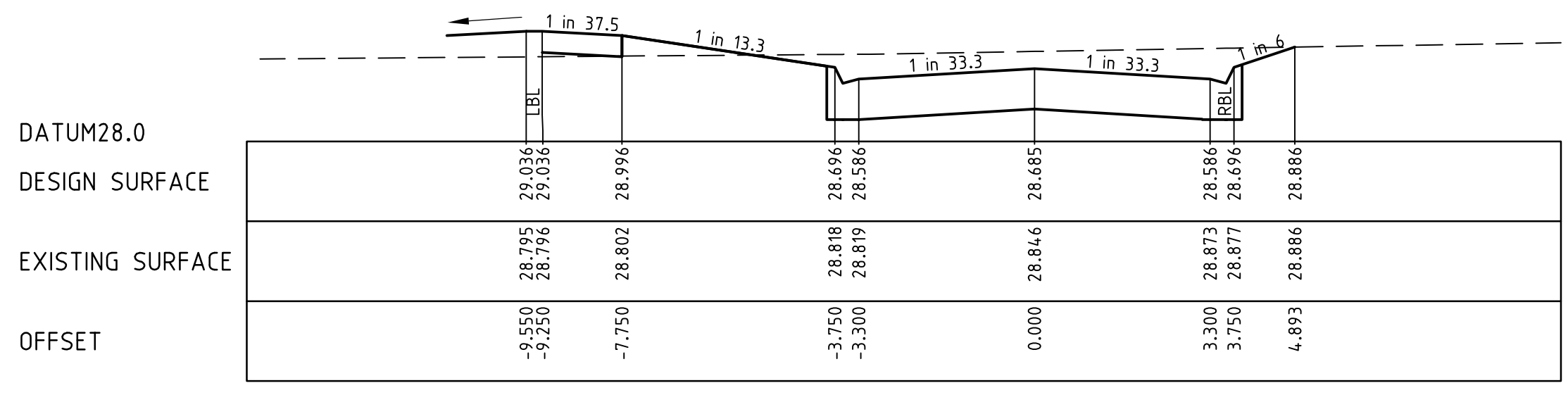
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Carberra +61 2 8126 1900

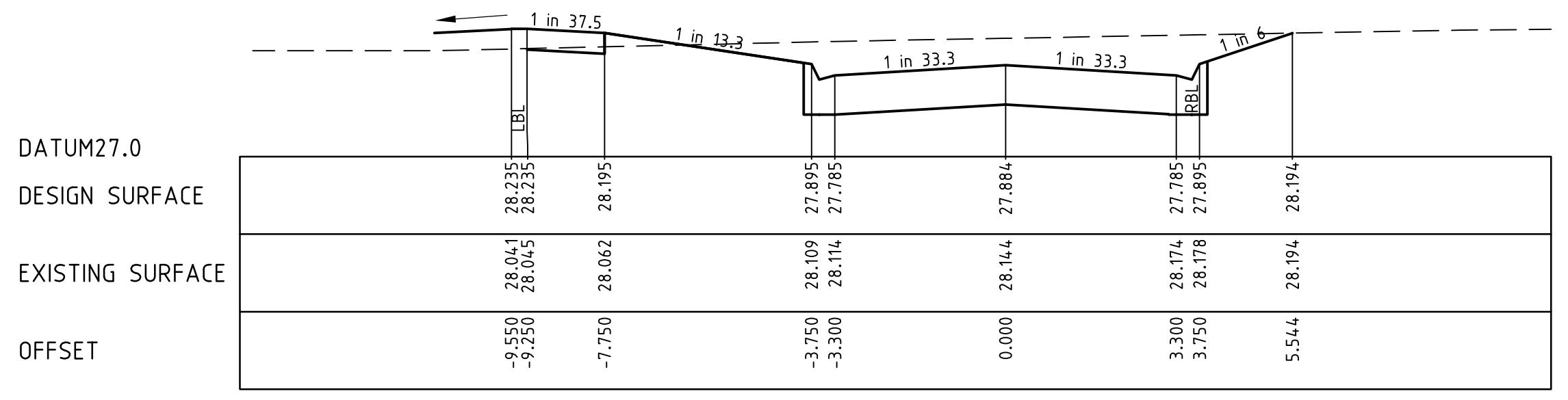
Gold Coast +61 7 5578 0222
Melbourne +61 3 9869 0800
Tarragon +61 3 5173 0190

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Village Green Drive - 2
Ch 461.650 - Ch 499.150
Drawing No. 0250EHL-09-12 **Rev C**
Sheet No. 12 of 21
Approved for Construction

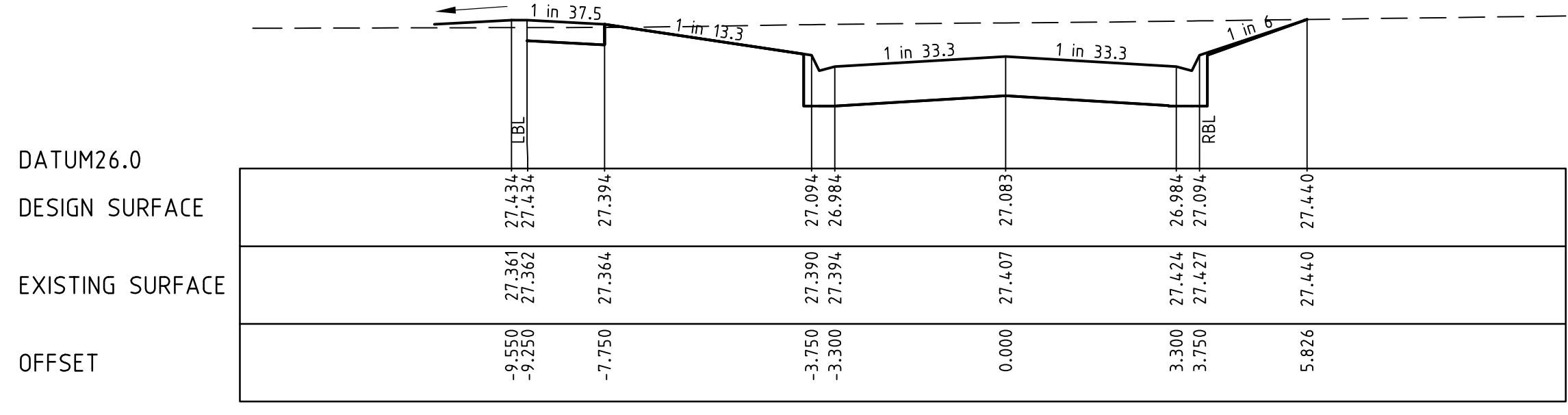
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



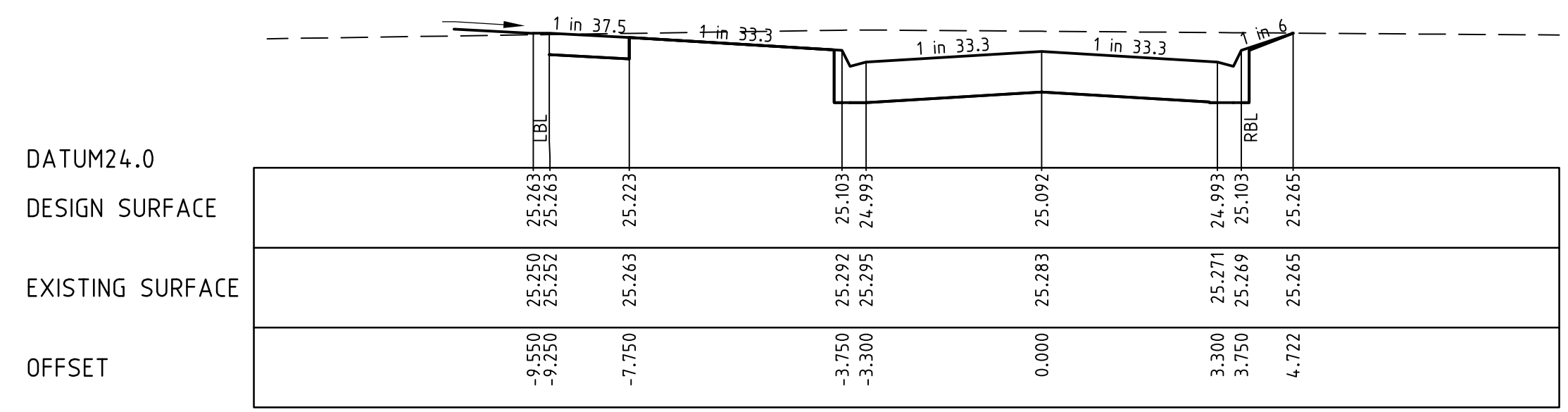
LTPCH 58.203



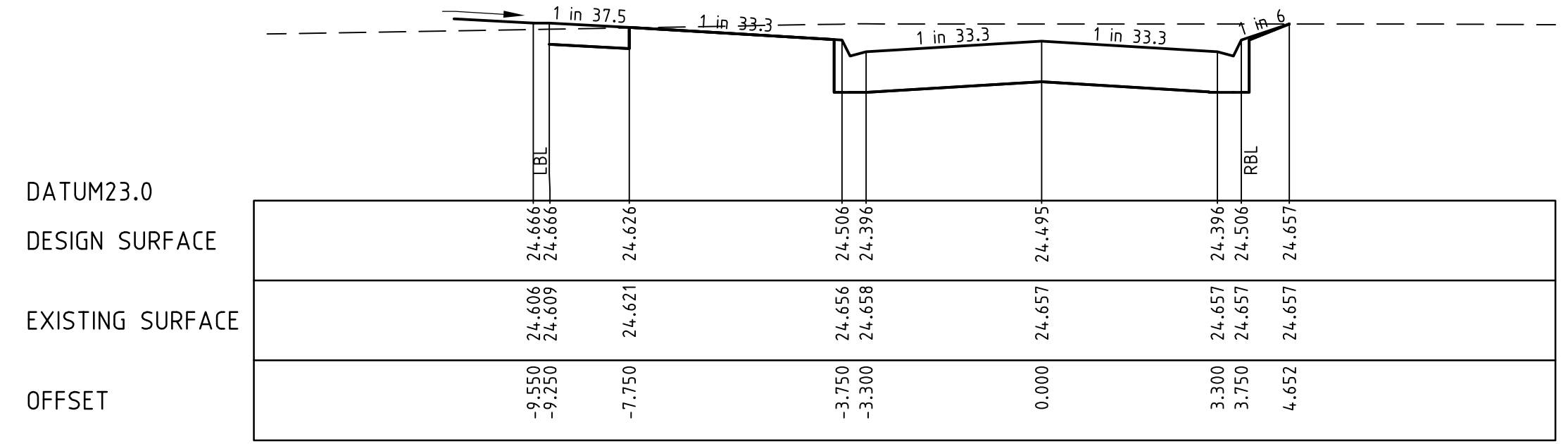
CH 43.974



LTPCH 29.746
SEASHORE LANE



LTPCH 442.943

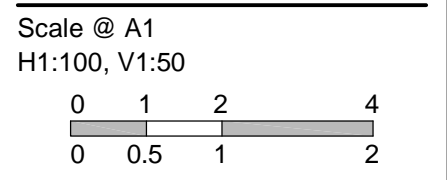


CH 428.432
TREEFERN STREET

REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
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Designed
C. Barker
Drawn
C. Barker
Checked
C. Birckett
Authorised
J. Golden
Date
June 2011



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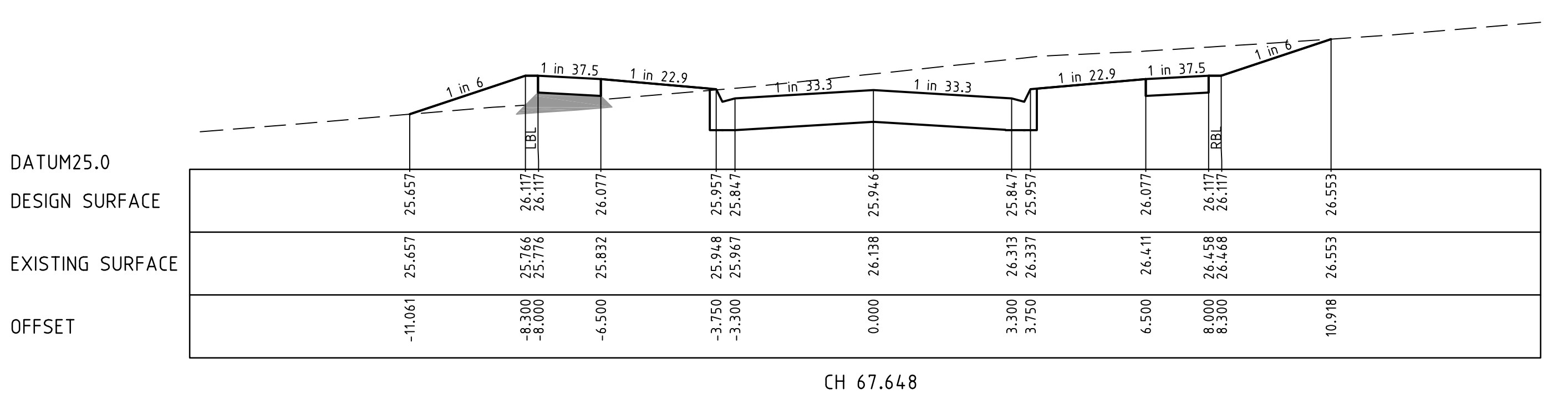
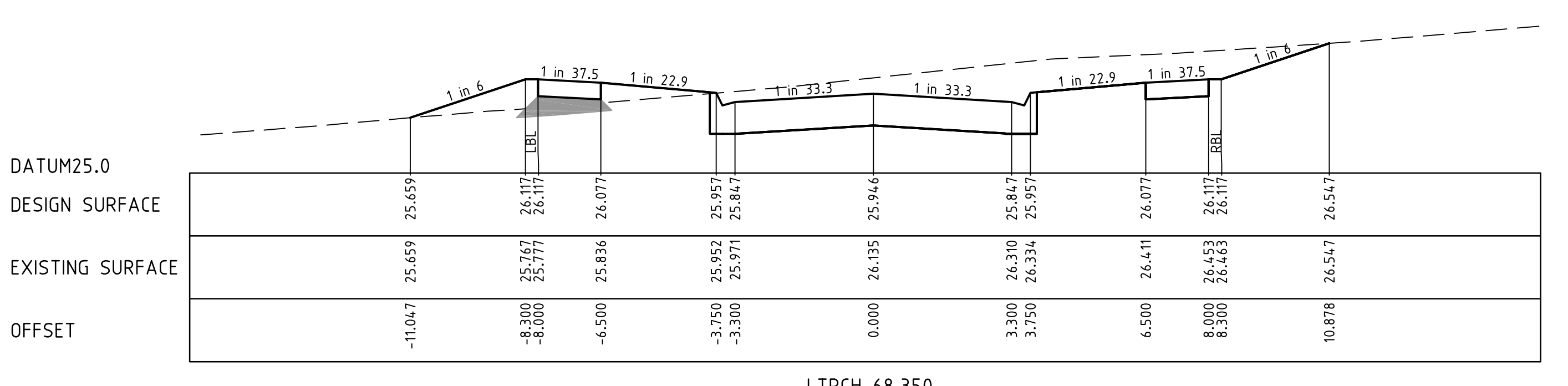
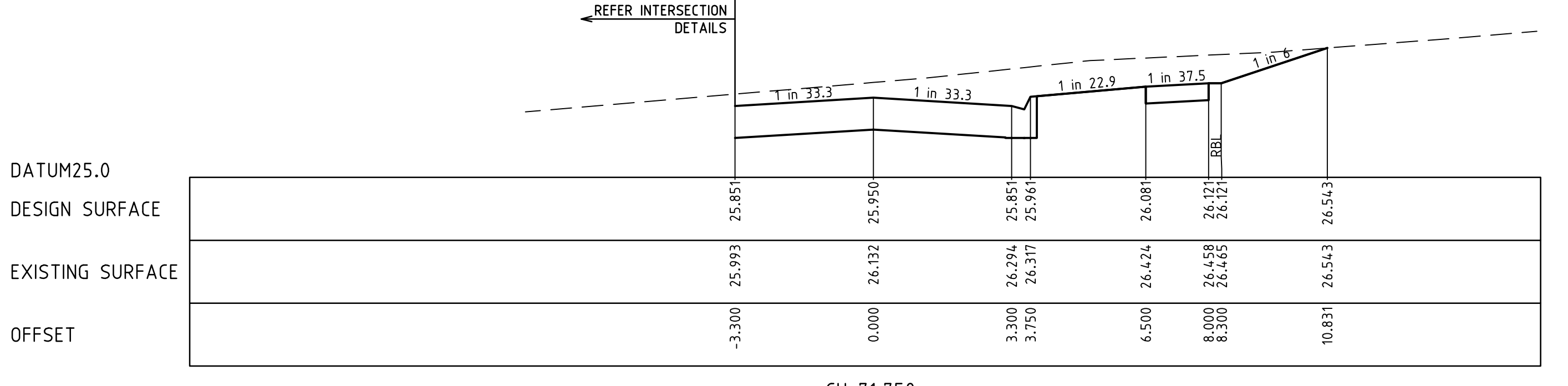
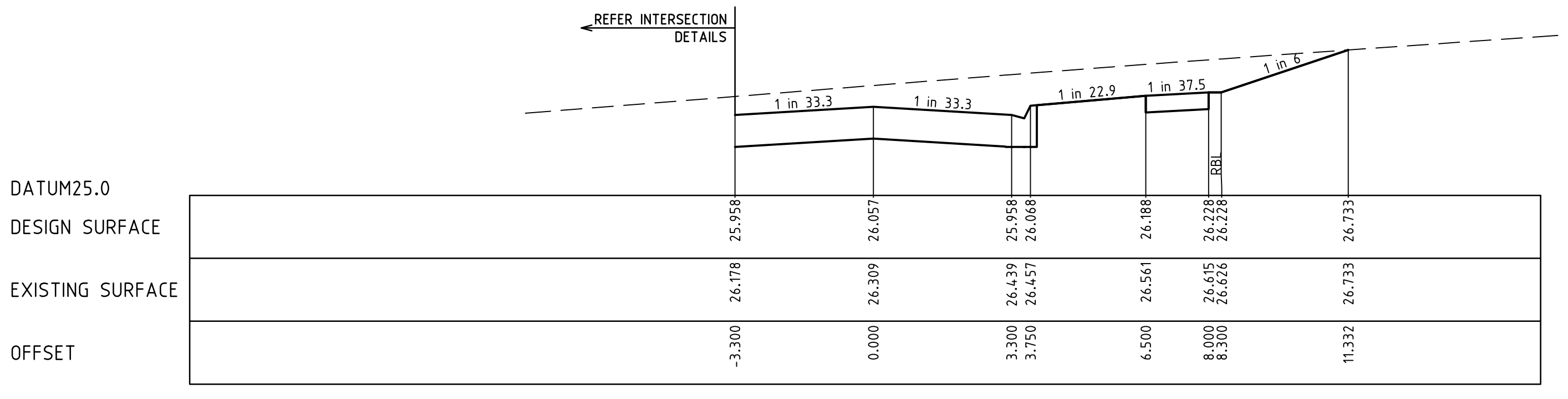
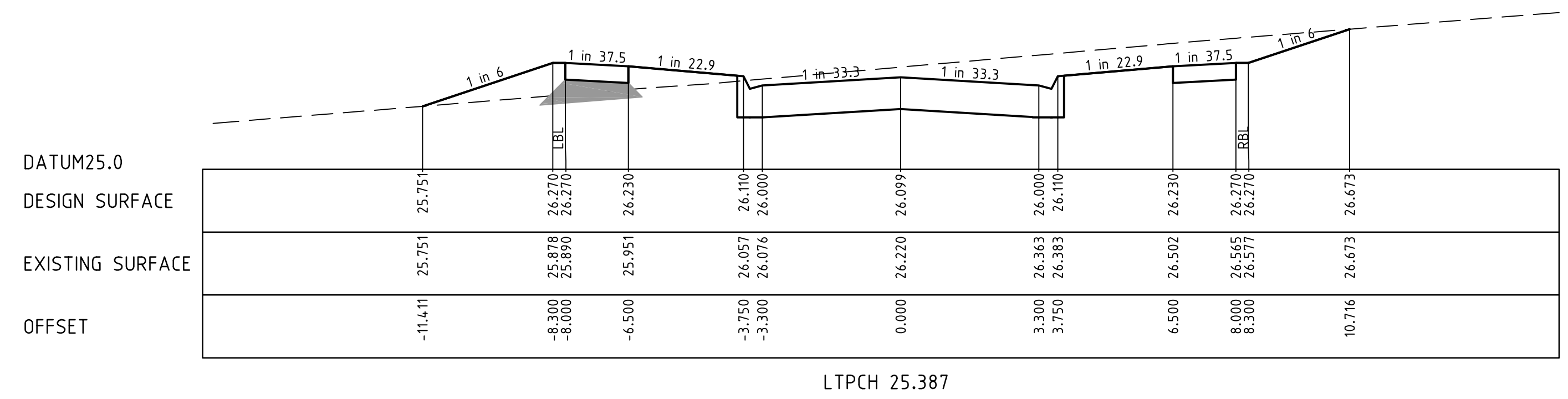
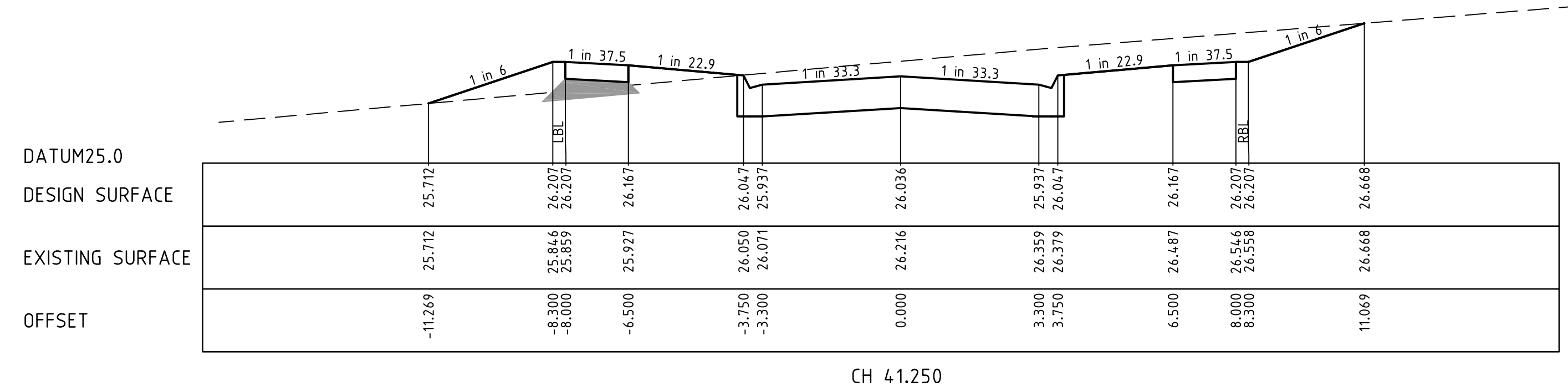
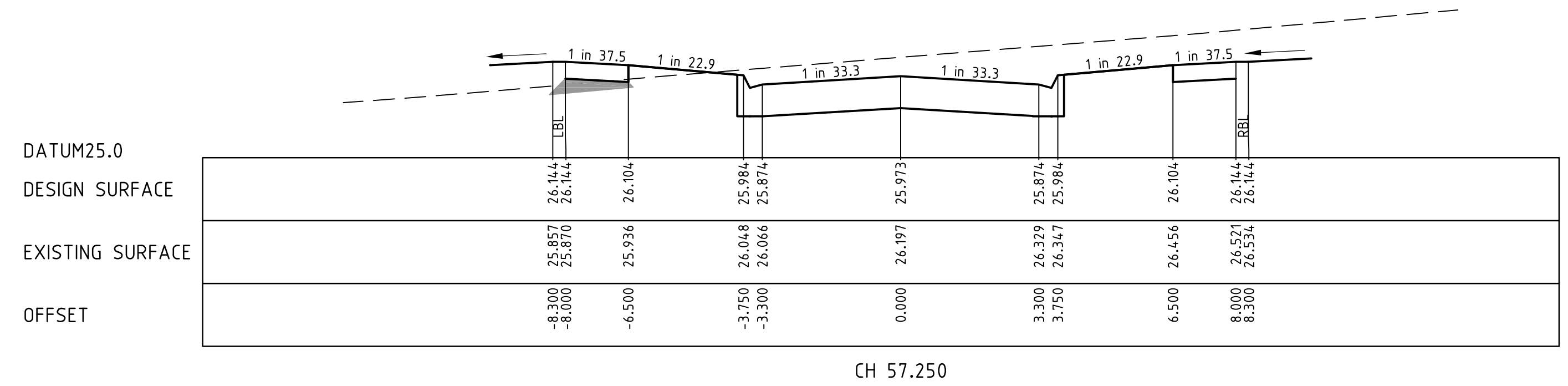
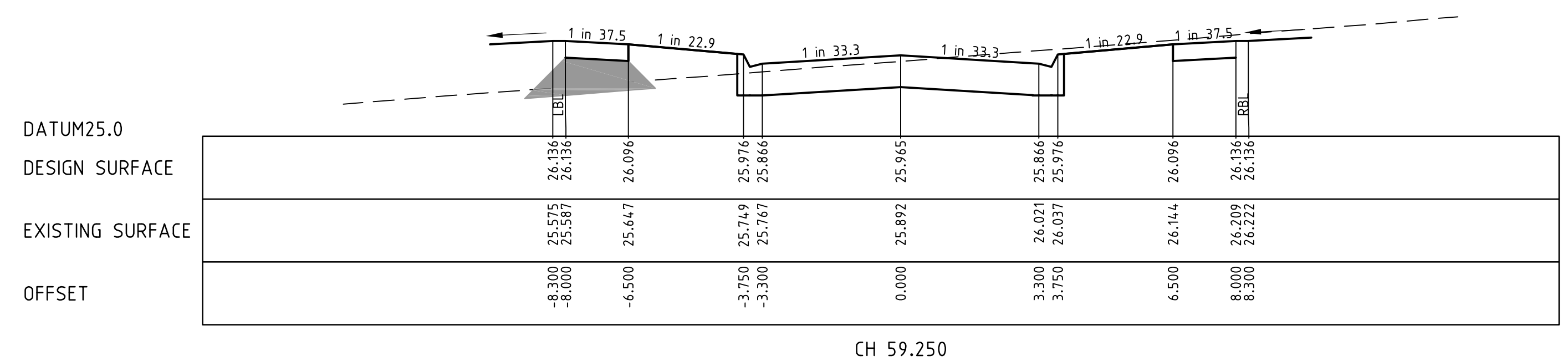
Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Karoo Lane & Paperbark Street

Drawing No. **0250EHL-09-13** Rev C
Sheet No. 13 of 21

Approved for Construction

---	EXISTING SURFACE
—	DESIGN LINE
- - -	FUTURE DESIGN LINE

STRUCTURAL FILL REQUIRED UNDER PAVEMENT AND FOOTPATHS WHERE CONSTRUCTED ABOVE NATURAL SURFACE



REVISION	DATE	DES/DFT	APPD
C	ROAD NAMES AMENDED	16.11.11	CB/AH JG
B	COUNCIL AMENDMENTS	29.07.11	CB/CB JG
A	ISSUED TO COUNCIL FOR APPROVAL	30.06.11	CB/CB JG

estuary
LEOPOLD™

Principal
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Southbank, Victoria 3006

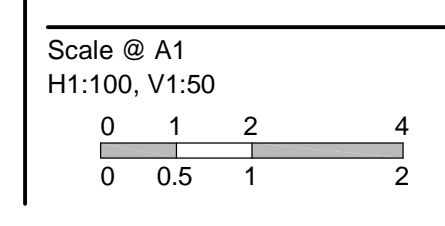
Designed
C. Barker

Drawn
C. Barker

Checked
C. Birckett

Authorised
J. Golden

Date
June 2011



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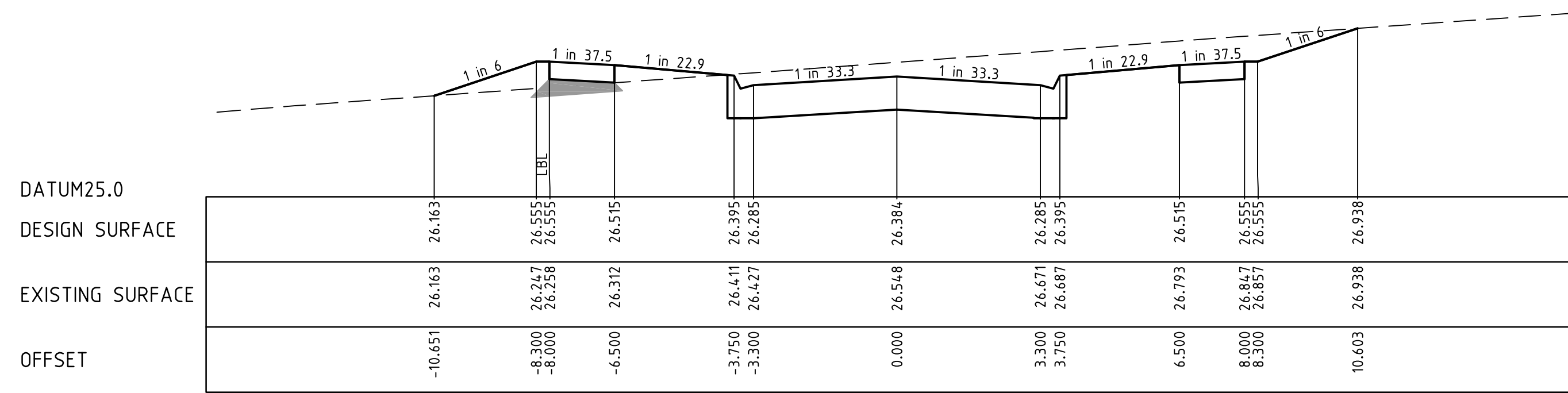
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Cairns +61 2 6126 1900 Traralgon +61 3 5173 0190

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Treefern Street - 1
Ch 25.387 - Ch 87.750
Drawing No. 0250EHL-09-14 **Rev C**
Sheet No. 14 of 21

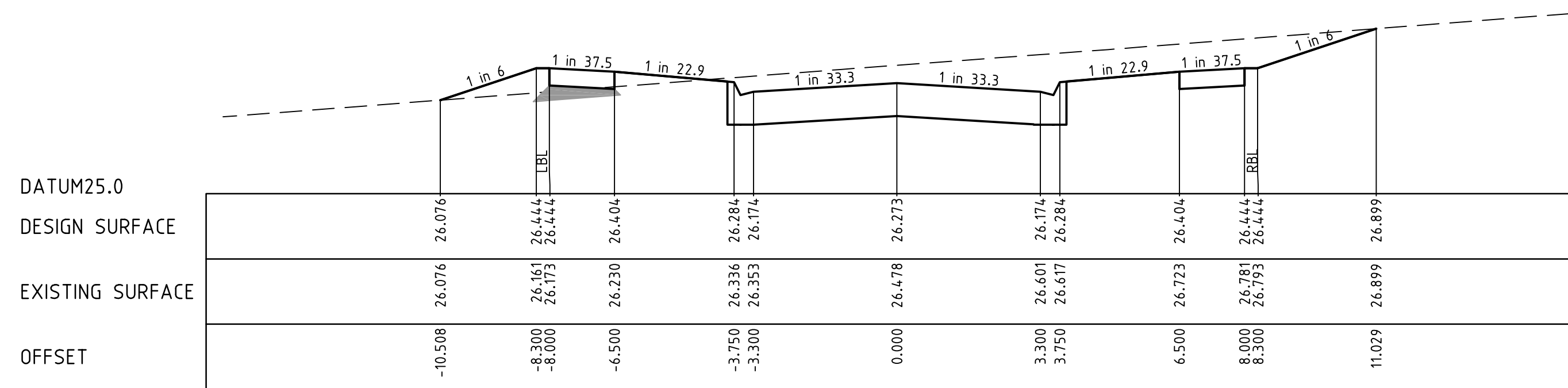
Approved for Construction

STRUCTURAL FILL REQUIRED UNDER
PAVEMENT AND FOOTPATHS WHERE
CONSTRUCTED ABOVE NATURAL SURFACE

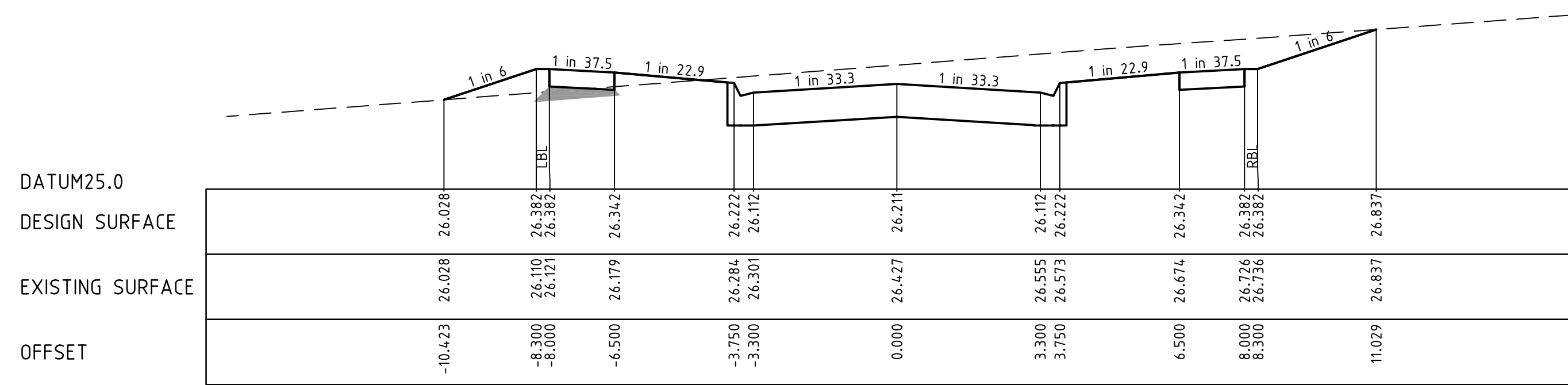
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



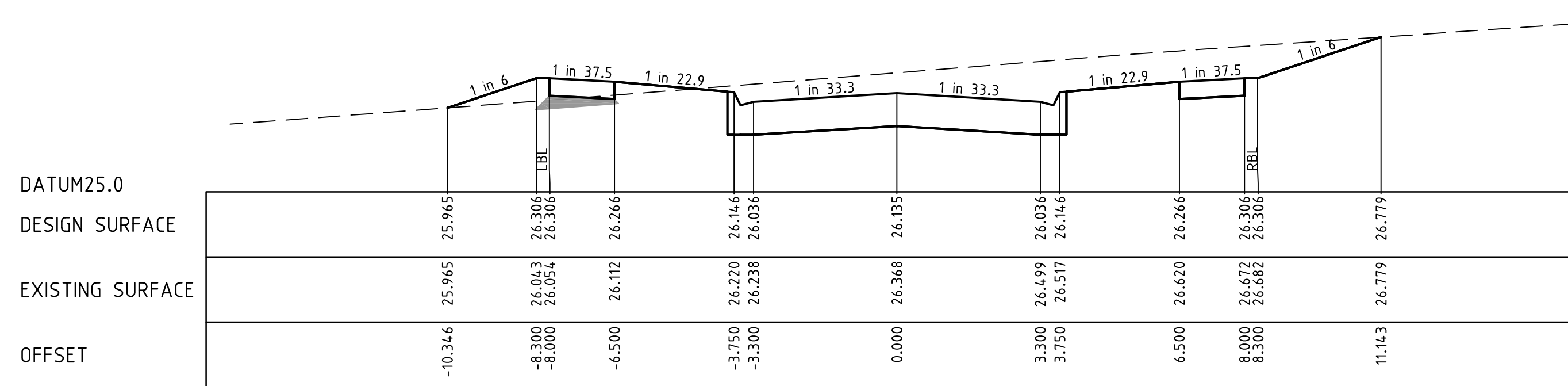
CH 114.250



CH 105.250



CH 100.250



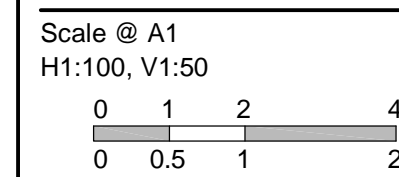
LTPCH 94.150

REVISION	DATE	DES/DFE	APPR
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG



Principal
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Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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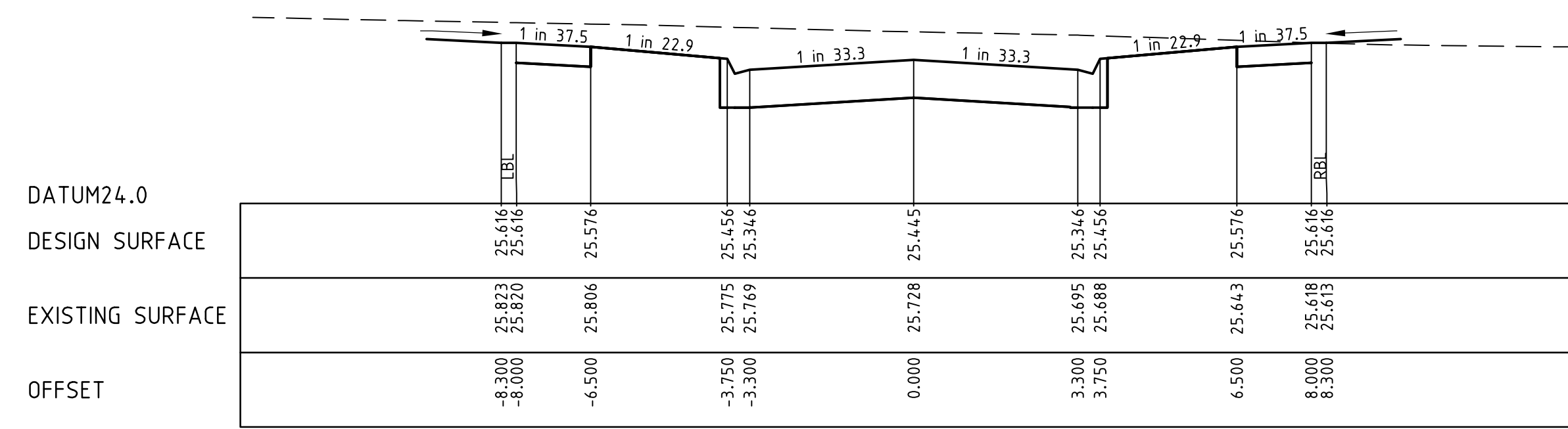
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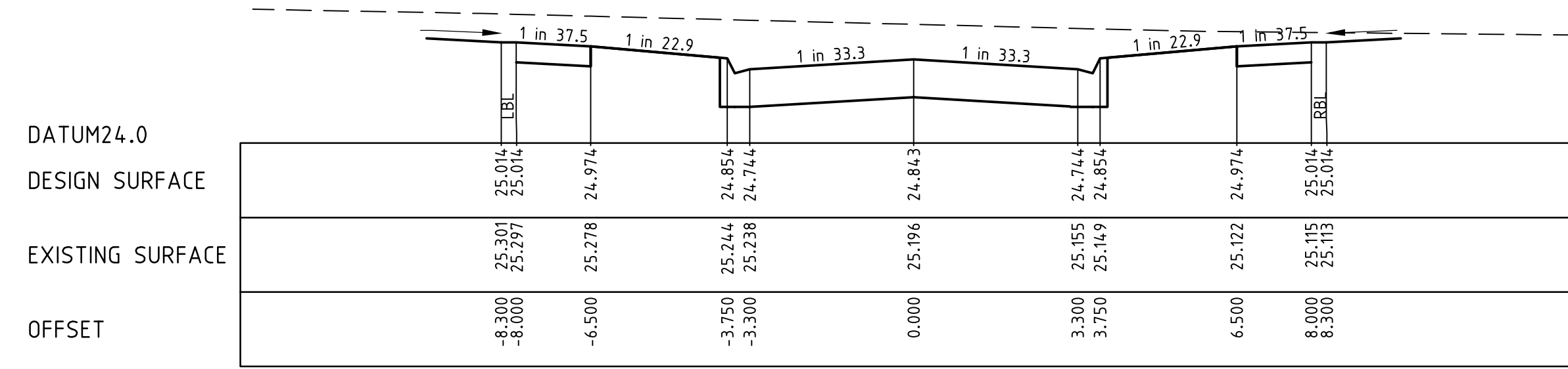
Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Treefern Street - 2
Ch 94.150 - Ch 114.250
Drawing No. 0250EHL-09-15 **Rev C**
Sheet No. 15 of 21

Approved for Construction

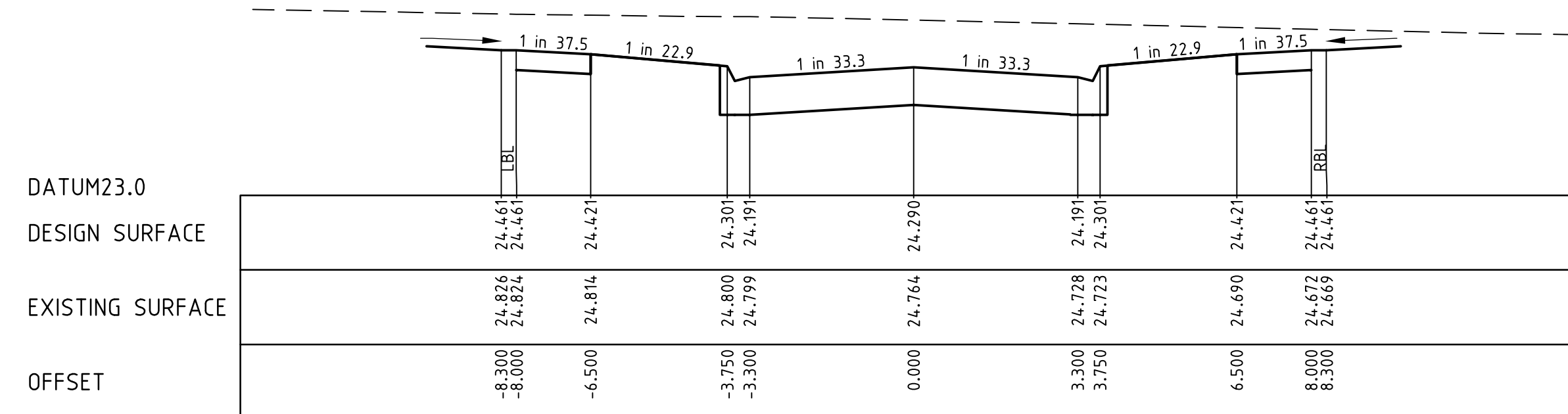
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



TPCH 192.599



CH 178.499



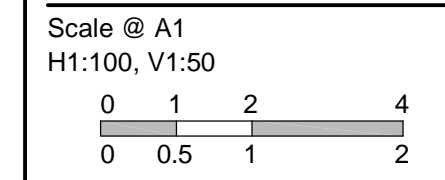
CH 165.499

REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG



Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
C. Barker
Drawn
C. Barker
Checked
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Authorised
J. Golden
Date
June 2011



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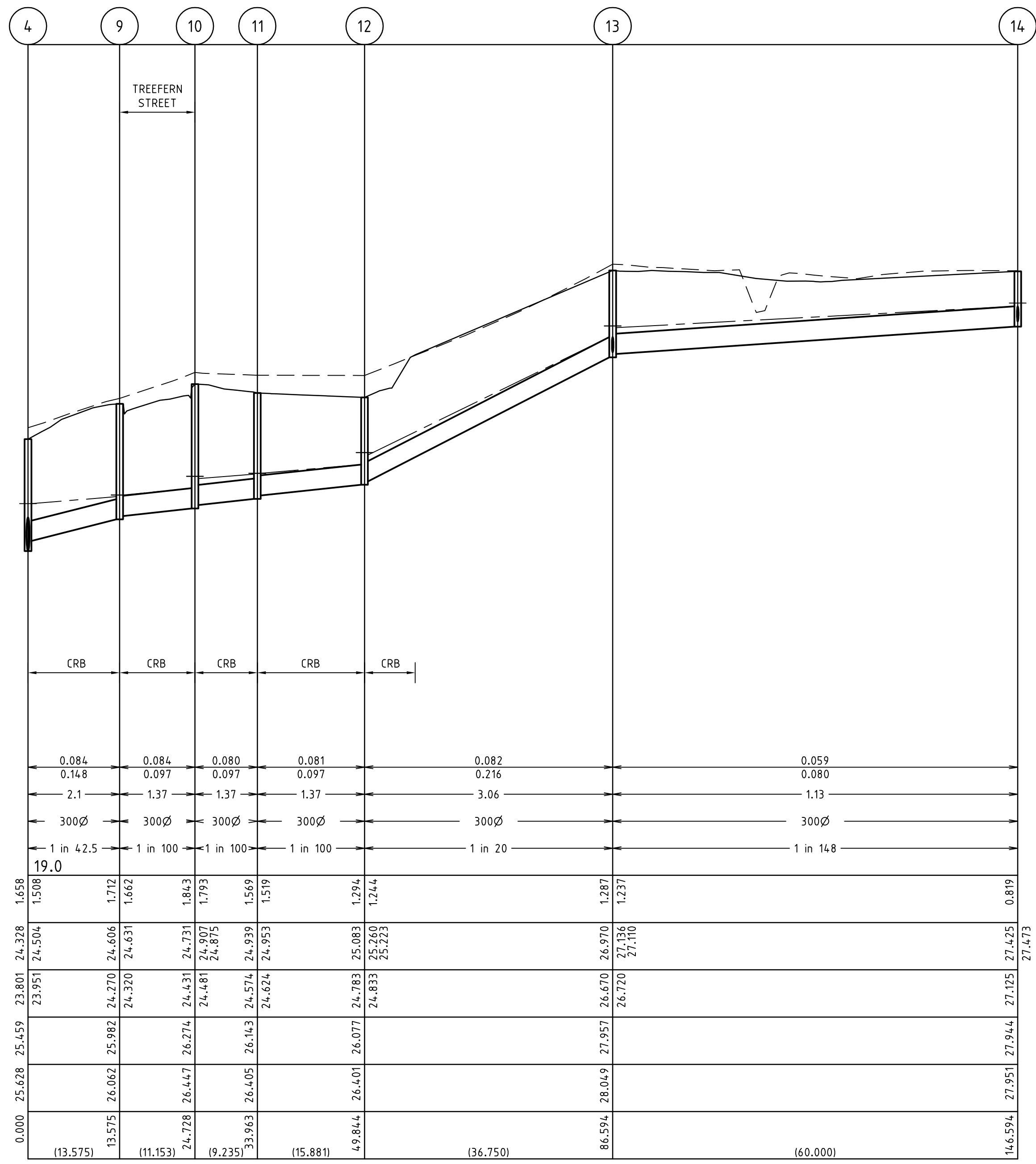
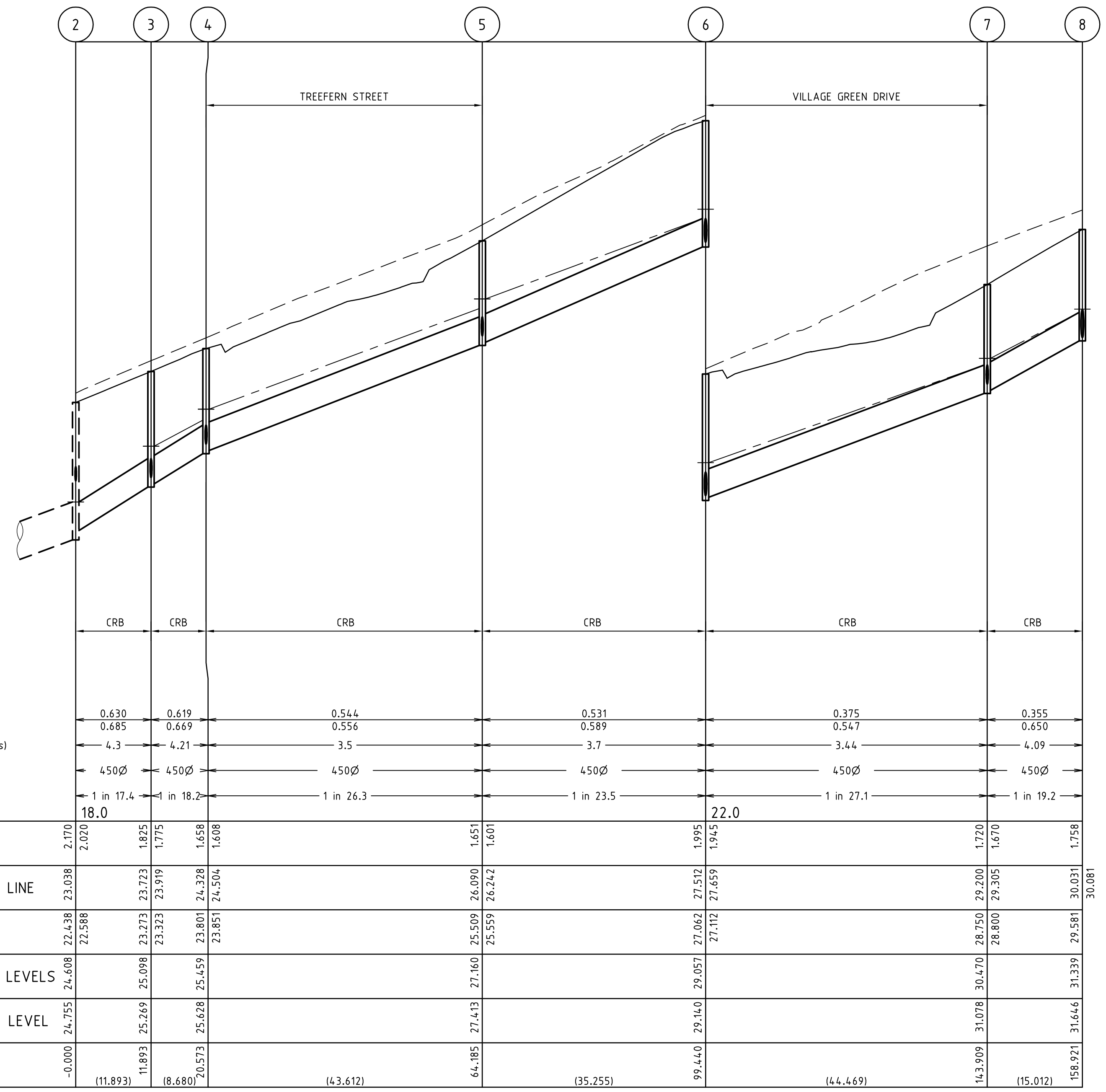
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Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Canberra +61 2 6126 1900 Darwin +61 3 5173 0100

Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Cross Sections - Timberland Street

Drawing No. **0250EHL-09-16** Rev **C**
Sheet No. 16 of 21

Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE

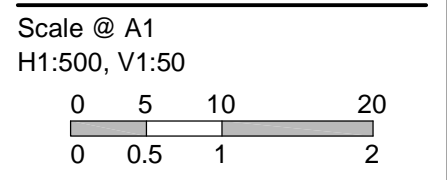


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REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

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C. Barker
Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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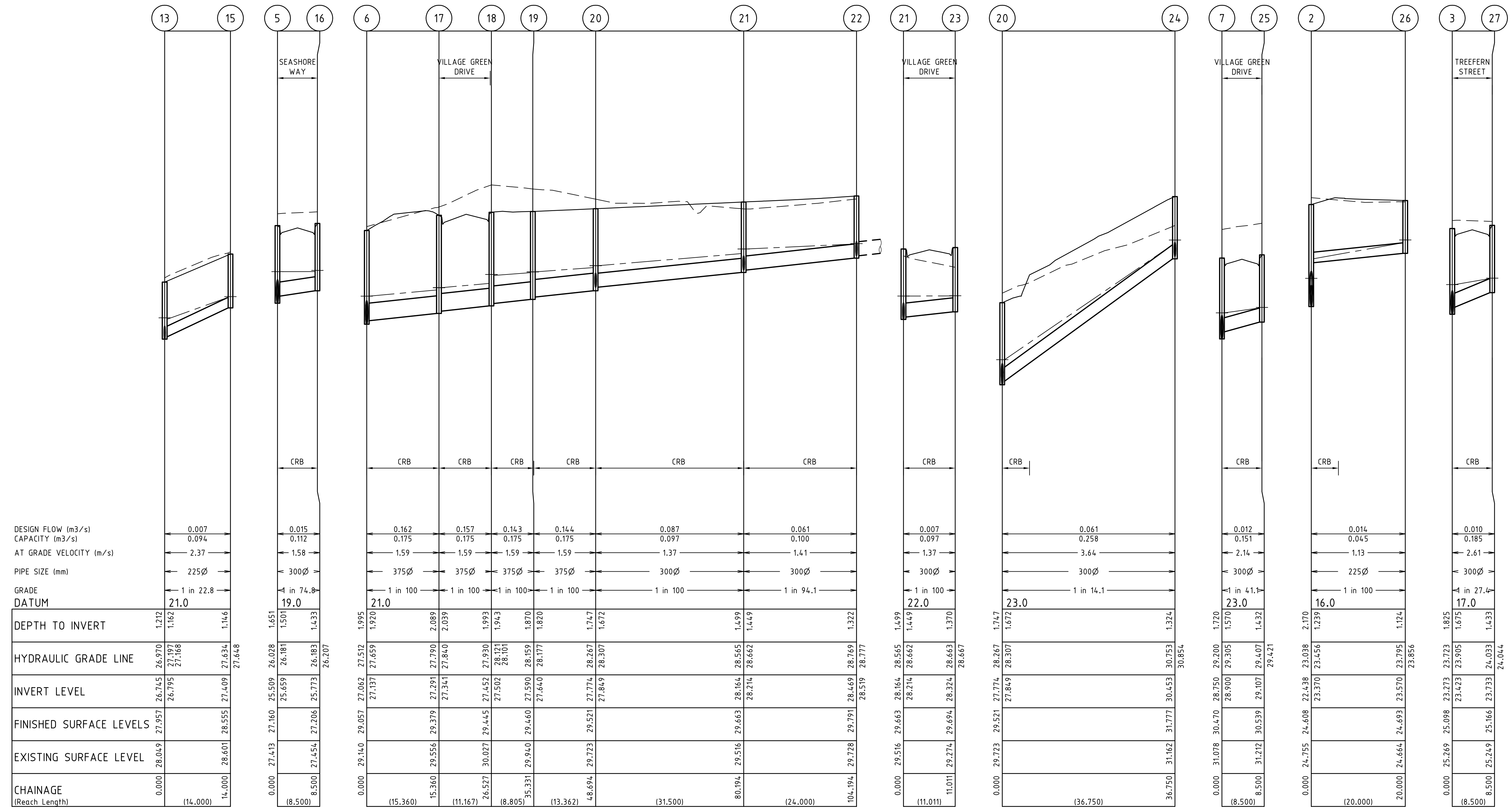
Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 1

Drawing No. 0250EHL-09-17 **Rev C**

Sheet No. 17 of 21

Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE



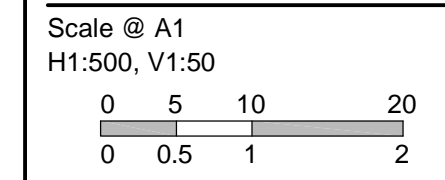
DESIGN FLOW (m³/s)	CAPACITY (m³/s)	AT GRADE VELOCITY (m/s)	PIPE SIZE (mm)	GRADE	DATUM
0.007	0.094	2.37	225Ø	1 in 22.8	21.0
0.015	0.112	1.58	300Ø	1 in 74.8	19.0
0.162	0.175	1.59	375Ø	1 in 100	21.0
0.157	0.175	1.59	375Ø	1 in 100	21.0
0.143	0.175	1.59	375Ø	1 in 100	21.0
0.144	0.175	1.59	375Ø	1 in 100	21.0
0.087	0.097	1.37	300Ø	1 in 100	21.0
0.061	0.100	1.41	300Ø	1 in 94.1	21.0
0.007	0.097	1.37	300Ø	1 in 100	22.0
0.061	0.258	3.64	300Ø	1 in 14.1	23.0
0.012	0.151	2.14	300Ø	1 in 4.1	23.0
0.014	0.045	1.13	225Ø	1 in 100	16.0
0.010	0.185	2.61	300Ø	1 in 27.4	17.0

DEPTH TO INVERT	HYDRAULIC GRADE LINE	INVERT LEVEL	FINISHED SURFACE LEVELS	EXISTING SURFACE LEVEL	CHAINAGE (Reach Length)
1.212	26.970	26.745	27.957	28.049	0.000
1.162	27.168	26.795	27.197	28.601	14.000
1.651	26.028	25.509	27.160	28.555	14.000
1.501	26.181	25.659	27.160	28.601	14.000
1.433	26.183	25.733	27.206	28.555	14.000
1.433	26.207	25.773	27.206	28.555	14.000
1.995	27.512	29.057	29.140	29.728	0.000
1.920	27.659	27.137	29.057	29.728	0.000
2.089	27.790	27.291	29.556	29.728	15.360
2.039	27.840	27.341	29.379	29.728	15.360
1.993	27.930	27.452	29.445	29.728	16.527
1.943	28.101	27.502	30.027	29.728	16.527
1.870	28.159	27.590	29.940	29.728	35.331
1.820	28.177	27.640	29.460	29.728	35.331
1.747	28.267	27.774	29.521	29.728	48.694
1.672	28.307	27.849	29.723	29.728	48.694
1.499	28.565	28.164	29.516	29.728	80.194
1.449	28.662	28.274	29.516	29.728	80.194
1.370	28.663	28.324	29.274	29.728	110.111
1.324	30.954	31.162	29.723	29.728	110.111
1.747	28.267	27.774	29.521	29.723	0.000
1.672	28.307	27.849	29.723	29.723	0.000
1.570	29.205	28.900	31.212	31.162	36.750
1.432	29.407	29.107	30.539	31.162	36.750
1.421	29.421	29.121	30.539	31.162	36.750
2.170	23.038	24.438	24.755	24.664	0.000
1.239	23.456	23.370	24.608	24.664	0.000
1.124	23.795	23.570	24.608	24.664	20.000
1.825	23.723	25.098	25.249	25.166	0.000
1.675	23.905	23.423	25.249	25.166	0.000
1.433	24.033	23.733	25.249	25.166	0.000
1.433	24.033	23.733	25.249	25.166	0.000

REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

Principal
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Southbank, Victoria 3006

Designed
C. Barker
Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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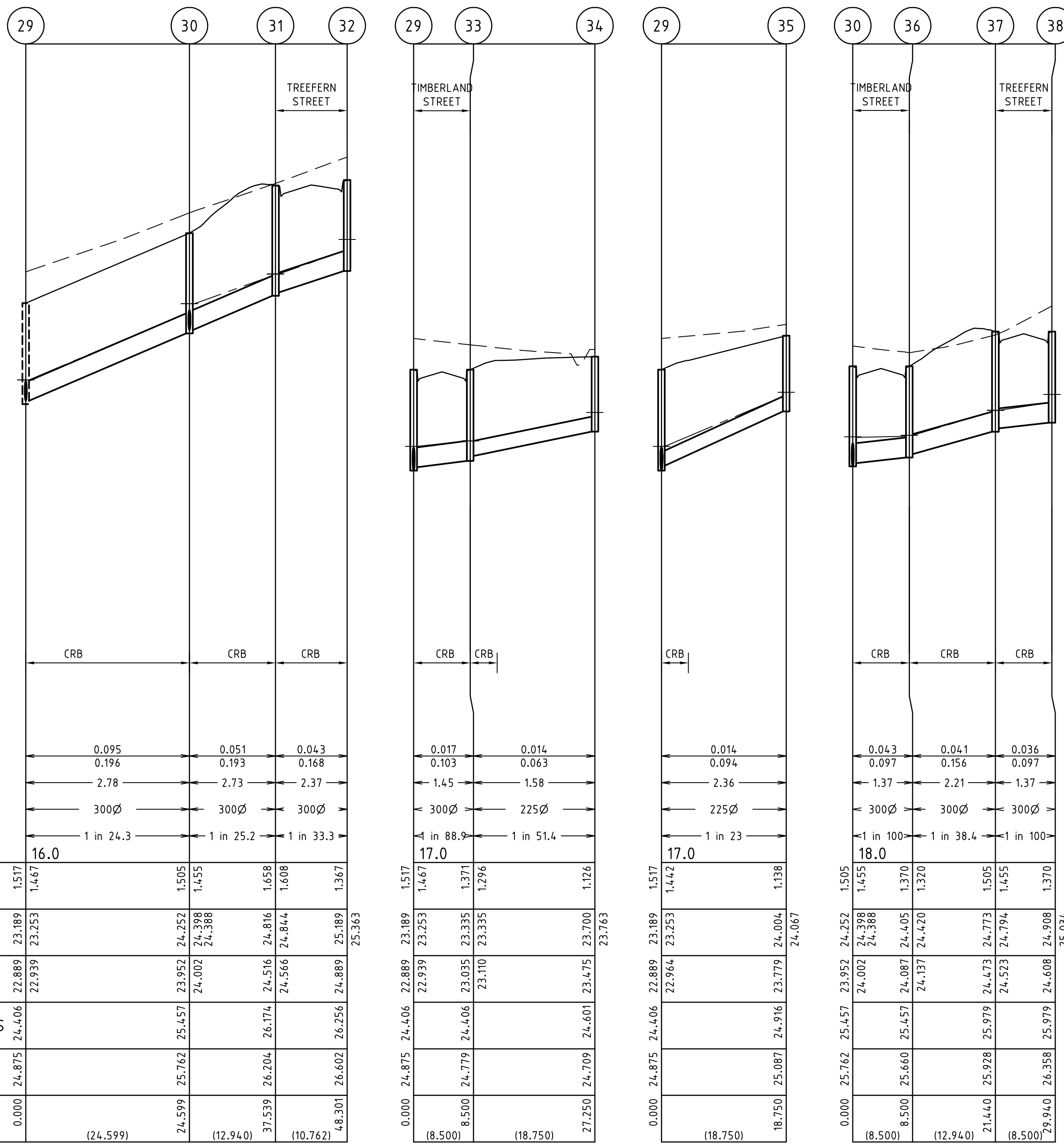
Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 2

Drawing No. **0250EHL-09-18** Rev C
Sheet No. 18 of 21

Approved for Construction

I:\work\eng\0250EHL-09-18\horizons\leopold\0250EHL-09-18.dwg

LEGEND	
---	EXISTING SURFACE
---	DESIGN SURFACE
---	DRAINAGE PIPE/PIT
---	EXISTING DRAINAGE PIPE/PIT
---	HYDRAULIC GRADE LINE



DESIGN FLOW (m3/s)	0.095	0.051	0.043
CAPACITY (m3/s)	0.196	0.193	0.168
AT GRADE VELOCITY (m/s)	2.78	2.73	2.37
PIPE SIZE (mm)	300ø	300ø	300ø
GRADE	1 in 24.3	1 in 25.2	1 in 33.3
DATUM	16.0		

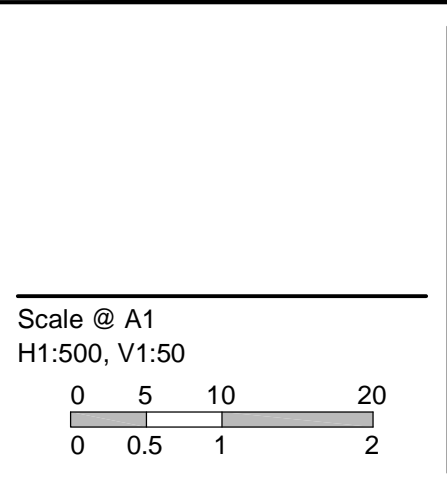
PIT NUMBER	TYPE	INTERNAL		INLET		OUTLET		F.S.L. (m)	DEPTH (m)	STANDARD DRAWING	REMARKS
		WIDTH (mm)	LENGTH (mm)	DIAMETER (mm)	INVERT R.L.(m)	DIAMETER (mm)	INVERT R.L. (m)				
2	Ex PIT			450	22.588	600	22.438	24.608	2.170		CONNECT TO EXISTING PIT
3	SIDE ENTRY PIT	900	900	450	23.323	450	23.273	25.098	1.825	SD 430 & SD 415	
4	JUNCTION PIT	900	900	450	23.851	450	23.801	25.459	1.658	SD 420	
5	SIDE ENTRY PIT	900	900	450	25.559	450	25.509	27.160	1.651	SD 430	
6	SIDE ENTRY PIT	900	900	450	27.112	450	27.062	29.057	1.995	SD 430 & SD 415	
7	SIDE ENTRY PIT	900	900	450	28.800	450	28.750	30.470	1.720	SD 430 & SD 415	
8	JUNCTION PIT	900	900	450	29.631	450	29.581	31.339	1.758	SD 420 & SD 415	
9	SIDE ENTRY PIT	900	900	300	24.320	300	24.270	25.982	1.712	SD 430 & SD 415	
10	SIDE ENTRY PIT	900	900	300	24.481	300	24.431	26.274	1.843	SD 430 & SD 415	
11	JUNCTION PIT	900	900	300	24.624	300	24.574	26.143	1.569	SD 420	
12	JUNCTION PIT	900	900	300	24.833	300	24.783	26.077	1.294	SD 420	
13	JUNCTION PIT	900	900	300	26.720	300	26.670	27.957	1.287	SD 425	
14	JUNCTION PIT	600	900	225	26.745	300	27.125	27.944	0.819	SD 425	
15	JUNCTION PIT	600	900	225	27.200	300	27.409	28.555	1.146	SD 425	
16	SIDE ENTRY PIT	900	900	300	27.409	300	27.206	27.206	1.433	SD 430	
17	SIDE ENTRY PIT	900	900	375	27.341	375	27.291	29.379	2.089	SD 430 & SD 415	
18	SIDE ENTRY PIT	900	900	375	27.502	375	27.452	29.445	1.993	SD 430 & SD 415	
19	JUNCTION PIT	900	900	375	27.640	375	27.590	29.460	1.870	SD 420 & SD 415	
20	JUNCTION PIT	900	900	300	27.849	375	27.774	29.521	1.747	SD 420 & SD 415	
21	SIDE ENTRY PIT	900	900	300	28.214	300	28.164	29.663	1.499	SD 430	
22	JUNCTION PIT	900	900	300	28.214	300	28.469	29.791	1.322	SD 420	
23	SIDE ENTRY PIT	900	900	300	28.519	300	28.324	29.694	1.370	SD 420	
24	JUNCTION PIT	900	900	300	30.503	300	30.453	31.777	1.324	SD 425	
25	SIDE ENTRY PIT	900	900	300	29.107	300	29.107	30.539	1.432	SD 430	
26	JUNCTION PIT	600	900	225	23.570	300	23.570	24.693	1.124	SD 425	
27	SIDE ENTRY PIT	900	900	300	23.733	300	23.733	25.166	1.433	SD 430	
29	SIDE ENTRY PIT	900	900	300	22.939	300	22.889	24.406	1.517	SD 430	
30	SIDE ENTRY PIT	900	900	300	24.002	300	23.952	25.457	1.505	SD 430	
31	SIDE ENTRY PIT	900	900	300	24.566	300	24.516	26.174	1.658	SD 430	
32	SIDE ENTRY PIT	900	900	300	24.889	300	24.889	26.256	1.367	SD 430	
33	SIDE ENTRY PIT	900	900	225	23.110	300	23.035	24.406	1.371	SD 430	
34	JUNCTION PIT	600	900	225	23.475	225	23.475	24.601	1.126	SD 425	
35	JUNCTION PIT	600	900	225	23.779	225	23.779	24.916	1.138	SD 425	
36	SIDE ENTRY PIT	900	900	300	24.087	300	24.087	25.457	1.370	SD 430	
37	SIDE ENTRY PIT	900	900	300	24.523	300	24.473	25.979	1.505	SD 430	
38	SIDE ENTRY PIT	900	900	300	24.608	300	24.608	25.979	1.370	SD 430	

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REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
C. Barker
Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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ABN 99 124 206 819

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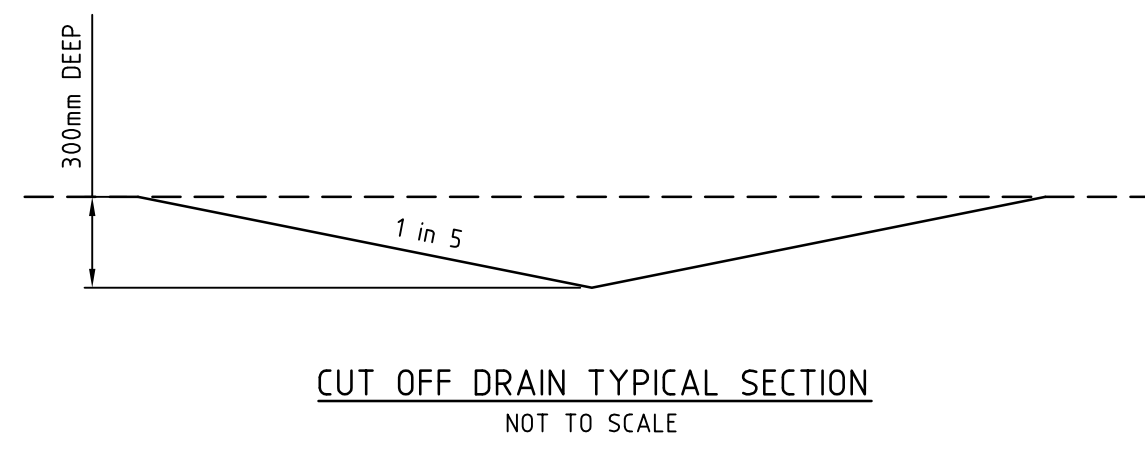
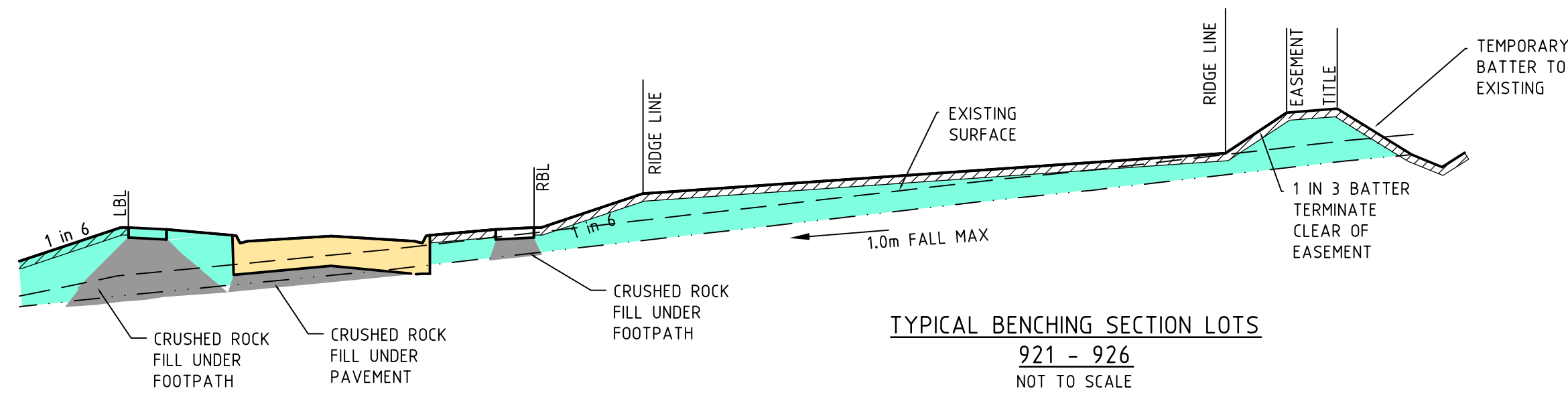
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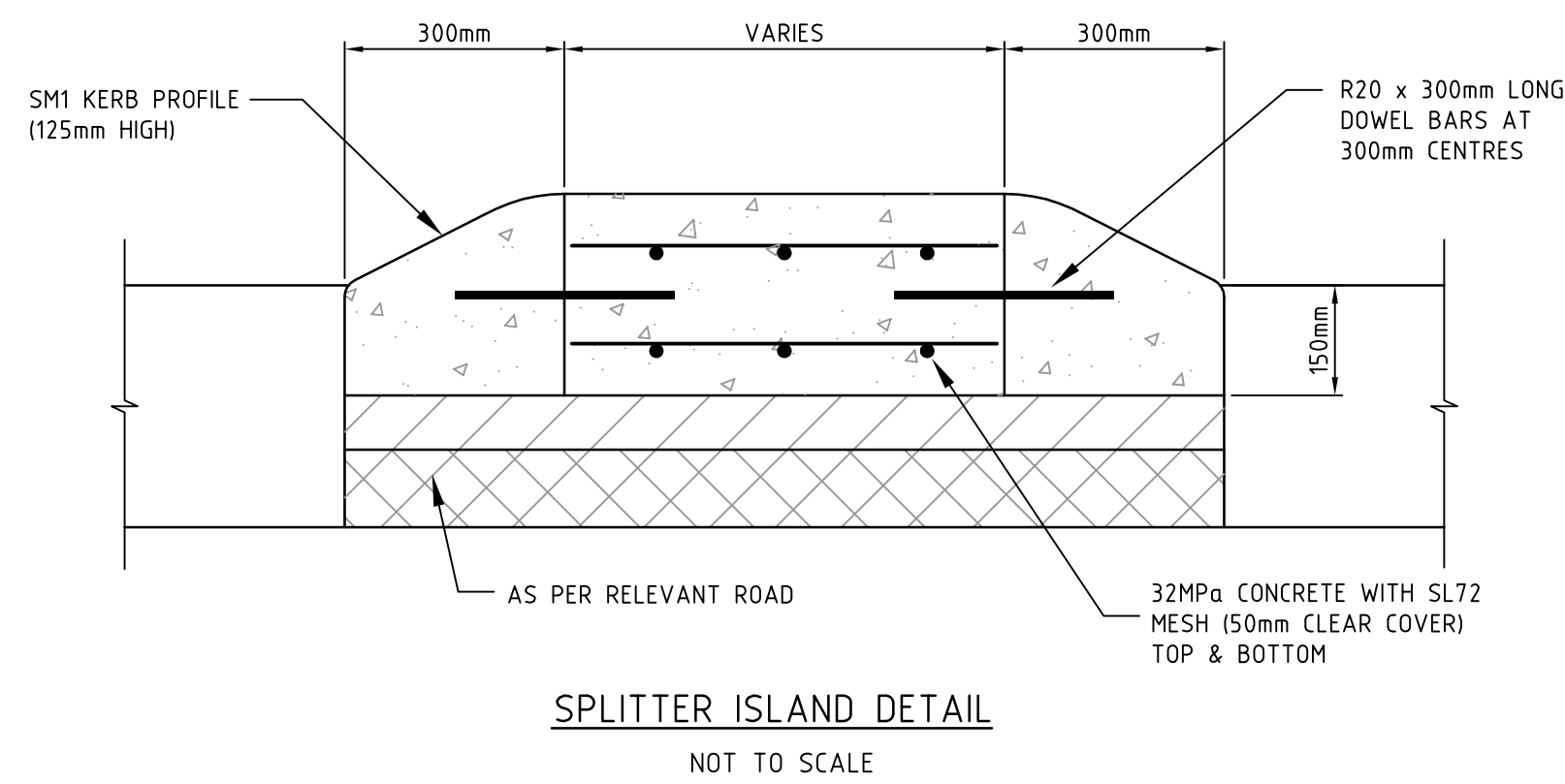
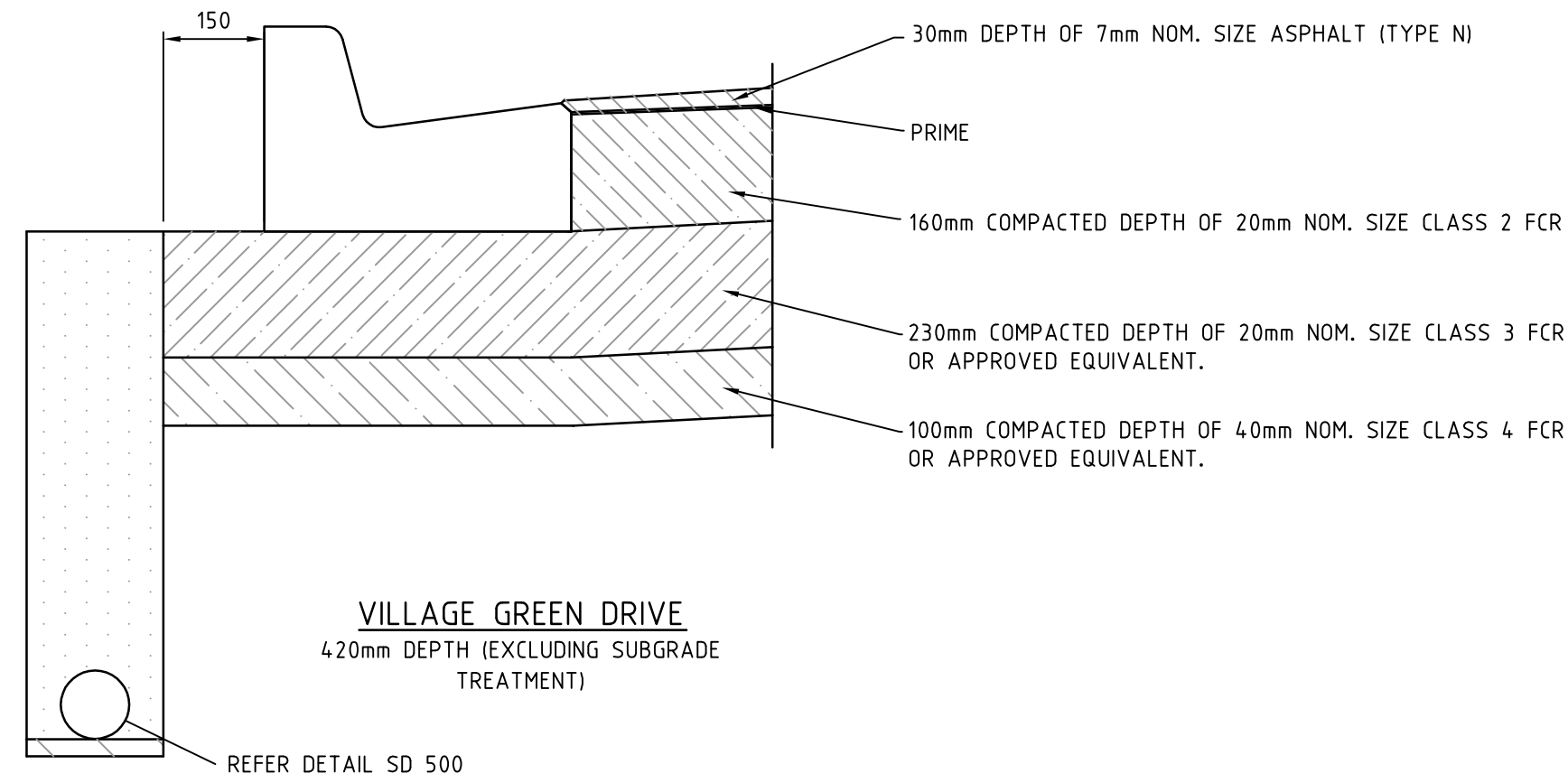
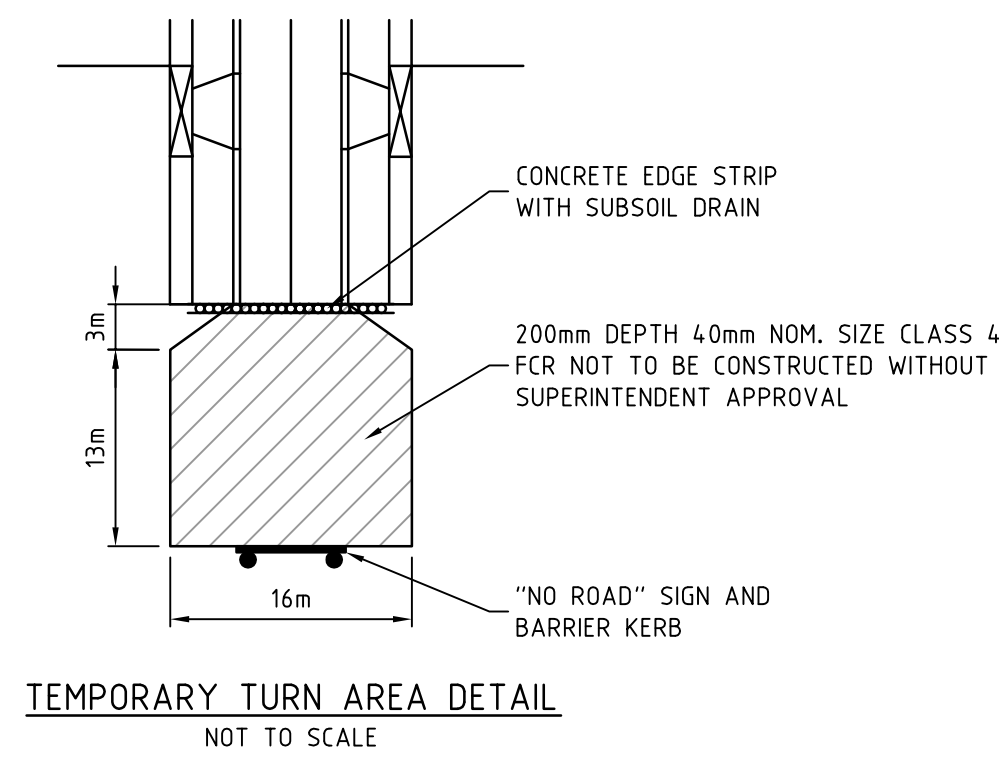
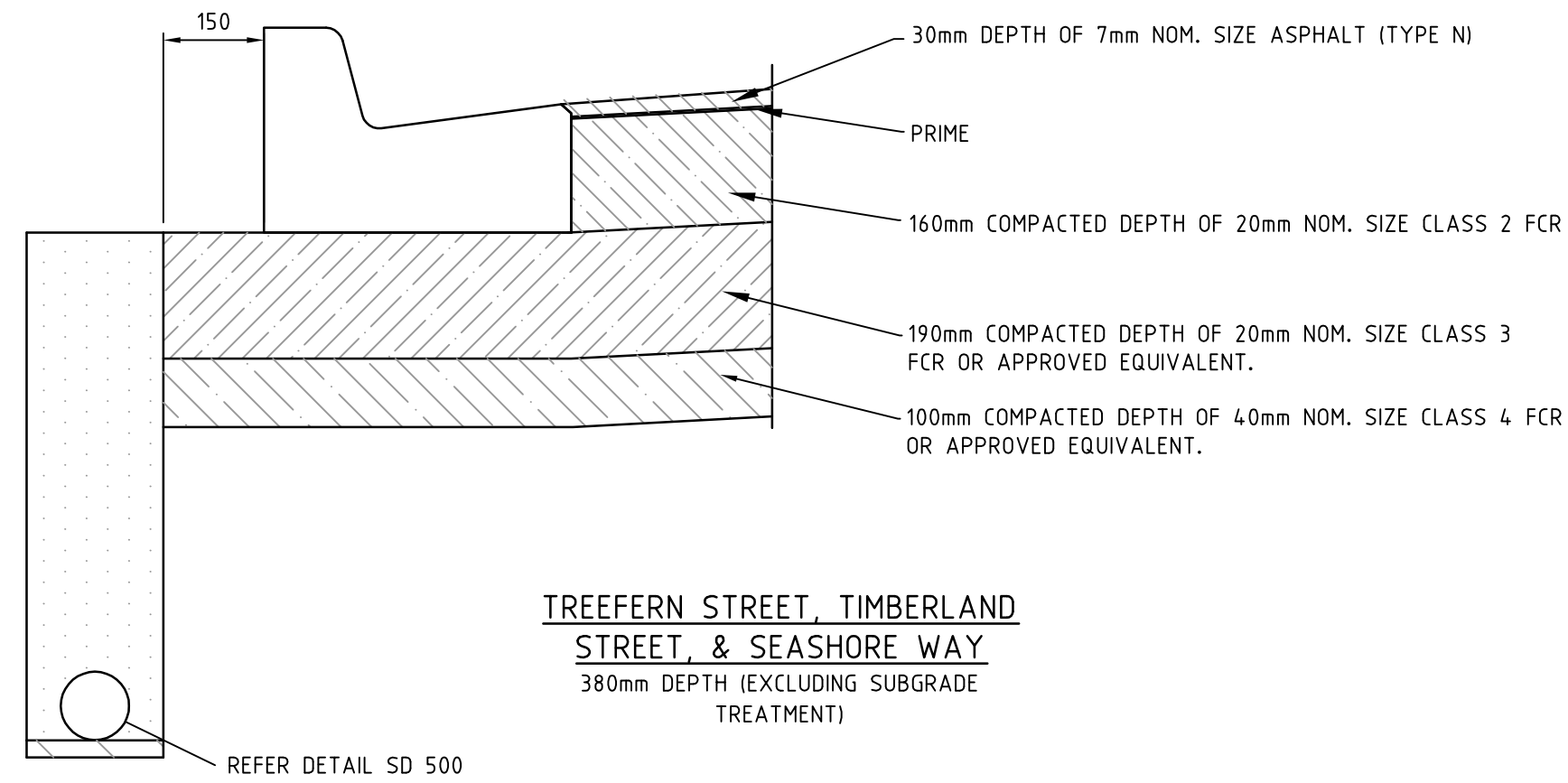
Estuary
Stage 9
City of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 3 & Pit Schedule

Drawing No. **0250EHL-09-19** Rev C
Sheet No. 19 of 21

Approved for Construction



- CUT AREAS
- FILL AREAS
- TOPSOIL STRIP & RE-GRADE AREAS
- CUT AREA AND RESPREAD TOPSOIL TO A 150mm DEPTH

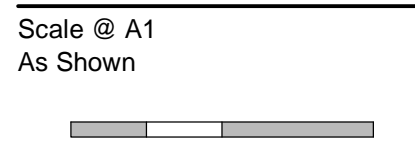


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REVISION	DATE	DES/DF	APPD
D	13.11.12	CB/CB	JG
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
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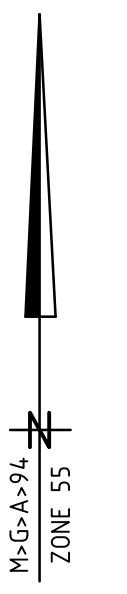
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Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Details

Drawing No. 0250EHL-09-20 **Rev D**

Sheet No. 20 of 21

Approved for Construction



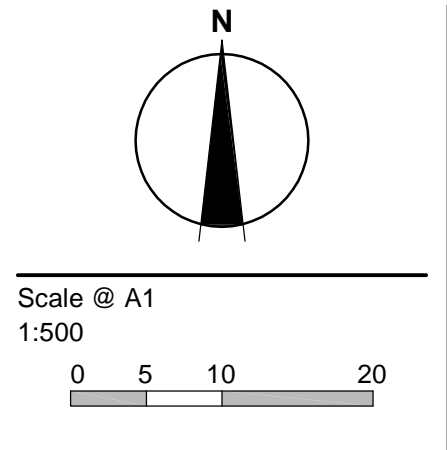
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REVISION	DATE	DES/DFT	APPD
C	16.11.11	CB/AH	JG
B	29.07.11	CB/CB	JG
A	30.06.11	CB/CB	JG



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Estuary
Stage 9
City Of Greater Geelong
Roadworks and Drainage
Subdivision Setout Plan

Drawing No. **0250EHL-09-21** Rev C
Sheet No. 21 of 21

Approved for Construction

- LEGEND - SEWER PLAN**
- STORMWATER DRAIN & PIT
 - SEWER & MAINTENANCE STRUCTURES
 - S— TYPE "A" JUMP UP
 - S— TYPE "B" JUMP UP
 - S— TYPE "C" SLIDE LINE
 - S— OBLIQUE JUNCTION
 - S— TYPE "A" SPECIAL
 - S— TYPE "TM" SPECIAL
 - S— TYPE "B" SPECIAL
 - Ex— EXISTING ELECTRICITY (UNDERGROUND)
 - /H— EXISTING ELECTRICITY (OVERHEAD)
 - Ex— EXISTING GAS
 - Ex— EXISTING TELSTRA
 - Ex— EXISTING WATER
 - EXISTING STORMWATER DRAIN
 - EXISTING SEWER
 - 141.34 EXISTING SURFACE LEVEL
 - FS140.35 FINISHED BUILDING LINE LEVEL
 - FR157.10 FINISHED RIDGE LINE LEVEL
 - ▲ PERMANENT SURVEY MARK
 - ▲ TEMPORARY BENCH MARK

- PIPE TYPES**
- AC ASBESTOS CEMENT
 - CICL CAST IRON CEMENT LINED
 - DICL DUCTILE CEMENT LINED
 - MSCL MILD STEEL CEMENT LINED
 - PVC POLYVINYL CHLORIDE
 - PE POLYETHYLENE (AS SPECIFIED)
 - RC REINFORCED CONCRETE
 - VC VITREOUS CLAY

WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works.
DIAL 1100 BEFORE YOU DIG
 www.1100.com.au

BARWON WATER APPROVED CONTRACTOR TO CONNECT TO EXISTING ACCESS CHAMBER AT CONTRACTORS COST. 7 CLEAR DAYS NOTICE PRIOR TO THE COMMENCEMENT OF WORKS MUST BE GIVEN TO THE SUPERINTENDENT AND BARWON WATER SENIOR QUALITY AUDITOR.

BARWON WATER APPROVED CONTRACTOR TO CONSTRUCT NEW HOUSE CONNECTIONS OVER EXISTING MAIN AT CONTRACTORS COST. 7 CLEAR DAYS NOTICE PRIOR TO THE COMMENCEMENT OF WORKS MUST BE GIVEN TO THE SUPERINTENDENT AND BARWON WATER SENIOR QUALITY AUDITOR.



- NOTES**
GENERAL
1. SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION OF AUSTRALIA STANDARD CODES (WSA 02-2002 - WSA 03-2002) IN CONJUNCTION WITH BARWON WATERS SUPPLEMENTS TO THE CODES.
 2. BARWON WATER AND THE PROJECT MANAGER TO BE NOTIFIED 7 CLEAR WORKING DAYS NOTICE PRIOR TO COMMENCEMENT OF WORKS.
 3. THE CONTRACTOR SHALL:
 - 3.A. COMPLY WITH SAFETY REQUIREMENTS OF THE MINES ACT, GENERAL REGULATIONS AND STATUTORY RULES, AND THE MINES (TRENCHES) REGULATIONS 1982.
 - 3.B. NOTIFY THE DEPARTMENT OF LABOUR OF HIS INTENTION TO COMMENCE TRENCHING OPERATIONS WHERE TRENCHES ARE 1.5 METRES OR DEEPER.
 - 3.C. INSURE THAT THE MINE MANAGER OR HIS DEPUTY AS REQUIRED BY THE REGULATIONS IS IN ATTENDANCE WHEN TRENCHING OPERATIONS ARE IN PROGRESS.
 4. THE CONTRACTOR SHALL MAKE ALL WORKS AVAILABLE FOR THE INSPECTOR/SURVEYOR TO CARRY OUT THE NECESSARY INSPECTIONS AND SURVEYING BEFORE BACKFILLING IS COMMENCED.
 5. SERVICES ARE APPROXIMATE ONLY. ALL RELEVANT SERVICE AUTHORITY'S ARE TO BE CONTACTED PRIOR TO THE COMMENCEMENT OF EXCAVATION TO ESTABLISH THEIR EXACT LOCATION.
 6. CONTACT PRIOR TO COMMENCEMENT OF WORKS:
 CITY OF GREATER GEELONG
 POWERCOR
 TELSTRA
 TRU
 VICTORIAN WORKCOVER AUTHORITY
 7. ALL SERVICES ARE TO BE LOCATED ON SITE PRIOR TO ANY EXCAVATION.
 8. INVERT LEVELS OF EXISTING SEWERS AND WATERMANS TO BE CHECKED PRIOR TO THE COMMENCEMENT OF WORKS.
 9. CLASS 2 BACKFILL TO BE USED UNDER DRIVEWAYS FOR WATER AND SEWER RETICULATION. PROPERTY OWNERS ARE TO BE NOTIFIED IN WRITING BY THE CONSULTANT 14 CLEAR DAYS PRIOR TO COMMENCEMENT OF WORKS.
 10. COPY OF CADASTRAL MAP GRID (MGA) CONNECTION & COPY OF AUSTRALIAN HEIGHT DATUM (AHD) CONNECTION IS TO BE PROVIDED BY CONTRACTOR.
 11. WORKS SHALL BE EFFECTED BETWEEN THE HOURS OF 8:00am AND 5:00pm MONDAY - FRIDAY. IN THE EVENT THAT WORKS ARE TO BE EFFECTED OUTSIDE THESE WORKING HOURS, A LETTER REQUESTING APPROVAL FOR SUCH OUT OF HOURS WORK SHALL BE LODGED TO THE SENIOR QUALITY AUDITOR.
 12. THE CONTRACTOR SHALL COMPLY WITH SAFETY REQUIREMENTS RELATING TO WORKING NEAR POWER LINES AS SET BY THE CHIEF ELECTRICAL INSPECTOR WHERE NECESSARY AN ACCREDITED TRAINED SPOTTER IS TO BE PROVIDED.
 13. WATER RESTRICTIONS ARE TO APPLY FROM MIDNIGHT JUNE 30th 2006, IN ACCORDANCE WITH BY-LAW NO. 187. ONLY TRIGGER HOSES (MAXIMUM SIZE 25mm) MAY BE USED FOR CONSTRUCTION WORK NOT INCLUDING TRENCHING, UNLESS OTHERWISE EXEMPTED BY THE AUTHORITY IN WRITING. MECHANICAL COMPACTION IS TO BE USED IN ACCORDANCE WITH MRWA SPECIFICATION 04-03 FOR TRENCH WORKS UNTIL FURTHER NOTICE. ANY WATER USED TO FLUSH WATER MAINS IS TO BE RECLAIMED AND USED FOR CONSTRUCTION PURPOSES.

- SEWER**
1. THE CONTRACTOR SHALL CORE CUT ALL HOLES INTO EXISTING PRECAST SEWER MAINTENANCE HOLES.
 2. ALL FSL'S SHOWN IN MAINTENANCE HOLES INFORMATION BOX ARE TOP OF MANHOLE LEVELS.
 3. ALL END OF LINES NOMINATED AS TMS ARE TO HAVE A TERMINAL MAINTENANCE SHAFT AS PER BARWON WATER STANDARD DRAWING 70095.
 4. WHERE FUTURE SEWER MAINS ARE INDICATED A 150mm ACCESS COUPLING AND CAP ARE TO BE PLACED OUT OF THE MANHOLE.
 5. WARNING: ENTRY INTO ANY MAINTENANCE HOLE IS CONTROLLED BY CONFINED SPACE REGULATIONS BEING "OCCUPATIONAL HEALTH & SAFETY (CONFINED SPACES) REGULATIONS 1996, STATUTORY RULE NO 148/1996 AND A.S. 2865 - 1995 SAFE WORKING IN CONFINED SPACES". PERSONS REQUIRING ACCESS TO ANY BARWON WATER MANHOLE AS PART OF THE DEVELOPER WORKS PROCESS MUST CONTACT THE SENIOR QUALITY AUDITOR PH (03) 5226 9204 FOR ANY REQUIREMENTS DURING THE CONSTRUCTION OF WORKS TO GAIN ACCESS TO A BARWON WATER MANHOLE THE PROCEDURE AS OUTLINED IN THE ATTACHED FLOWCHART IS TO BE FOLLOWED, AND "THE CONFINED SPACE ENTRY PERMIT APPLICATION FORM" (ALSO ATTACHED) IS TO BE COMPLETED AND LODGED WITH THE SENIOR QUALITY AUDITOR 3 (THREE) CLEAR WORKING DAYS PRIOR TO ENTRY.
 6. ALL SEWERS ARE TO BE PVC-SNB
 7. DETECTOR TAPE TO BE PLACED OVER SEWERS AT ALL ROAD CROSSINGS AND ALL CURVED SEWER MAINS.
 8. BORED SECTIONS OF SEWER TO BE CCTV INSPECTED IN ACCORDANCE WITH BARWON WATER'S LAND DEVELOPMENT MANUAL AND SUBMITTED TO BARWON WATER FOR ACCEPTANCE.
 9. ALL MANHOLE JOINTS, INCLUDING DROPS TO BE SEALED WITH FERROPRE OR APPROVED EQUIVALENT.
 10. ALL EXCAVATIONS AROUND A NEWLY CONSTRUCTED MANHOLE TO BE BACKFILLED WITH 3% CEMENT STABILISED SAND.

- SPECIAL**
1. TRENCH COMPACTION RESULTS TO BE SUBMITTED BY CONSULTANT WITH 'AS CONSTRUCTED' NOTES.

SURVEY STATIONS (HORIZONTAL - ARBITRARY, VERTICAL - AHD)

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	10106.39	48560.27	21.19	ROD
ROD502	10309.58	48587.59	28.62	ROD
MOOLAP PM69	1000.00	50000.00	-	BRASS PLAQUE
MOOLAP PM321	9897.742000	48994.921	9.436	BRASS PLAQUE
MOOLAP PM302	10212.03	48959.504	22.180	BRASS PLAQUE

SURVEY CONTROL

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	277245.07	5768919.27	21.19	ROD
ROD502	277448.31	5768946.60	28.62	ROD
MOOLAP PM69	277138.66	5770359.31	-	BRASS PLAQUE
MOOLAP PM321	27704.0	57694.80	9.436	BRASS PLAQUE
MOOLAP PM302	277310	5769280	22.180	BRASS PLAQUE

NEW SEWER MAINS

SIZE	TYPE	LENGTH
150	PVC SN8	53m

MAINTENANCE HOLE CHAMBER INFORMATION LEGEND

MH No.	LINE No. / DOWNSTREAM INVERT	LINE No. / UPSTREAM INVERT
F.S.L.	LINE No. / UPSTREAM INVERT	LINE No. / UPSTREAM INVERT

SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
VILLAGE GREEN DRIVE E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
TREEFERN STREET	EAST	2.10	EAST	2.70	EAST	2.30	EAST	1.70
VILLAGE GREEN DRIVE	WEST	2.10	WEST	2.70	EAST	2.30	EAST	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
SEASHORE WAY	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70

WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

REVISION	DATE	DES/DF	APPD
B BARWON WATER AMENDMENTS	29.08.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	21.07.11	CB/CB	JG

estuary LEOPOLD™

Principal
 Leopold Property Development Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Construction Notes

1. Construction of the sewer and water mains is to be in accordance with the Barwon Water standard specifications "Construction of gravity sewers and rising mains" and "Construction of water mains".
2. Every endeavour to ensure the location of all existing services on the plan are correct. However actual locations are to be checked on site prior to commencement of excavations.
3. Nominal size of water mains indicated in millimetres & offsets are indicated in metres.
4. All sewer pipes are 150mm unless otherwise shown.

Designed
 C. Barker

Drawn
 C. Barker

Checked
 C. Birkett

Authorised
 J. Golden

Date
 June 2011

Scale @ A1
 1:500

0 5 10 20

Scale of drawing

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 consulting group

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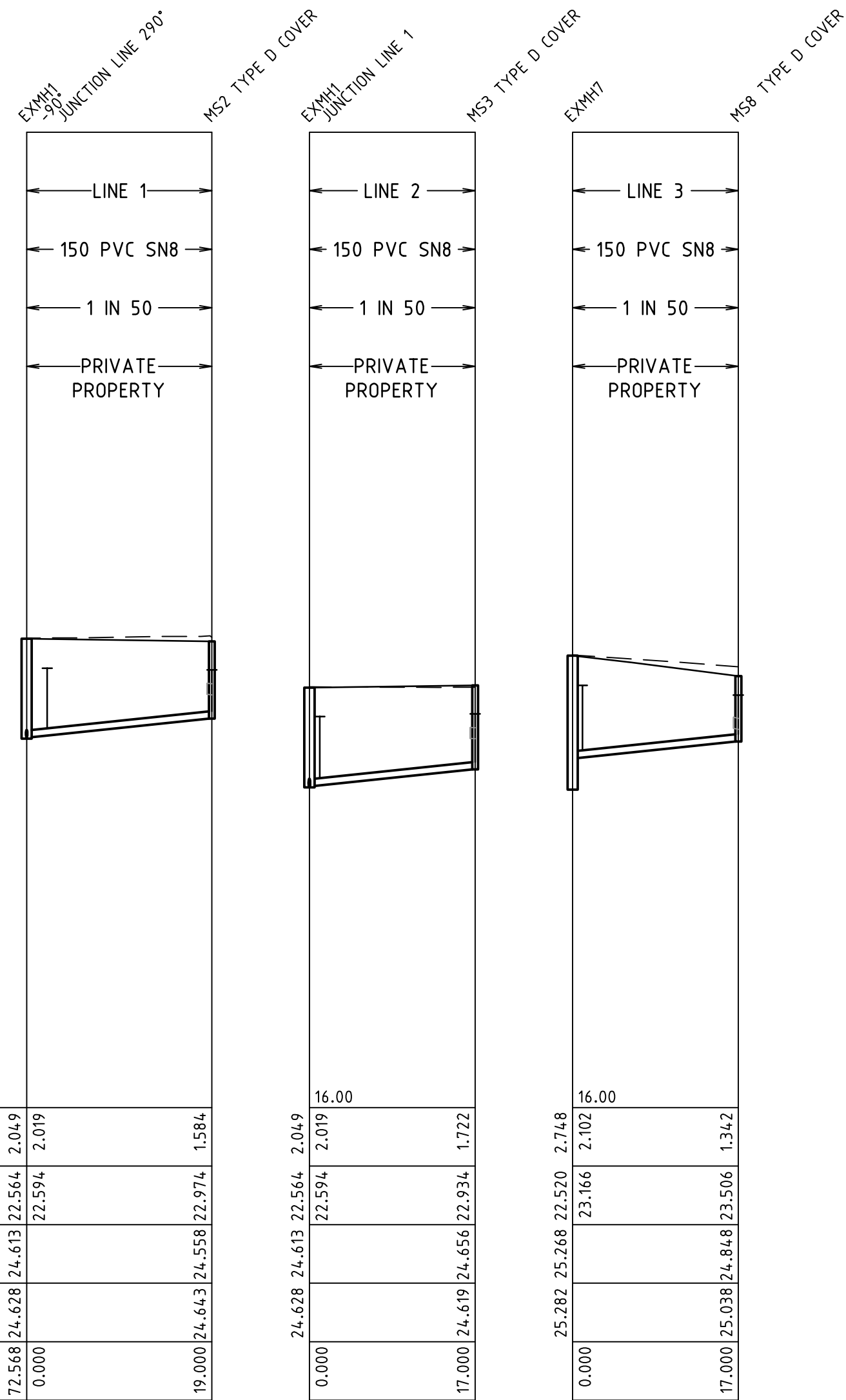
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Barwon Region Water Authority
 Barwon Water No. L007289
 Estuary
 Stage 9
 Sewer Detail Plan

Drawing No. **0250EHL-09-51** Rev B
 Sheet No. 1 of 2

Approved for Construction

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LINE NO.	MANHOLE NO.	HC NO.	LOT NAME	CONNECTION TYPE	CHAINAGE	IL SEWER	IL BRANCH	BRANCH HEIGHT
1	EXMH1	1	LOT 903	B	2.11	22.63	24.01	1.38
1	MS2	2	LOT 904	A SPECIAL	0.00	22.97	23.97	1.00
2	EXMH1	3	LOT 902	B	1.06	22.61	24.02	1.41
2	MS3	4	LOT 901	A SPECIAL	0.00	22.93	24.07	1.14
3	EXMH7	5	LOT 906	B	1.00	23.18	24.66	1.48
3	MS8	6	LOT 905	A SPECIAL	0.00	23.51	23.25	0.75

WORKS SHALL NOT COMMENCE UNTIL
PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER
DEVELOPMENT SERVICES
CO-ORDINATOR
DEVELOPMENT & CONSERVATION

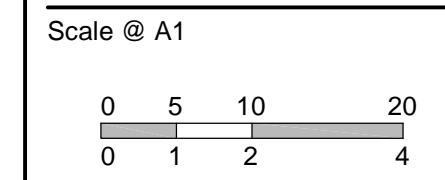
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REVISION	DATE	DES/DF	APPD
B BARWON WATER AMENDMENTS	29.08.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	21.07.11	CB/CB	JG

Principal
Leopold Property Development Pty Ltd
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Southbank, Victoria 3006

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Melbourne +61 3 9869 0800
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Barwon Region Water Authority
Barwon Water No. L007289
Estuary
0250EHL-09
Sewer Longitudinal Sections

Drawing No. 0250EHL-09-52 Rev B
Sheet No. 2 of 2

Approved for Construction

DESIGN HEAD=111.9m AHD
TEST PRESSURE=1600kPa

- NOTES**
GENERAL
- SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION OF AUSTRALIA STANDARD CODES (WSA 02-2002 - WSA 03-2002) IN CONJUNCTION WITH BARWON WATER'S SUPPLEMENTS TO THE CODES.
 - BARWON WATER AND THE PROJECT MANAGER TO BE NOTIFIED 7 CLEAR WORKING DAYS NOTICE PRIOR TO COMMENCEMENT OF WORKS.
 - THE CONTRACTOR SHALL:
 - COMPLY WITH SAFETY REQUIREMENTS OF THE MINES ACT, GENERAL REGULATIONS AND STATUTORY RULES, AND THE MINES (TRENCHES) REGULATIONS 1982.
 - NOTIFY THE DEPARTMENT OF LABOUR OF HIS INTENTION TO COMMENCE TRENCHING OPERATIONS WHERE TRENCHES ARE 1.5 METRES OR DEEPER.
 - INSURE THAT THE MINE MANAGER OR HIS DEPUTY AS REQUIRED BY THE REGULATIONS IS IN ATTENDANCE WHEN TRENCHING OPERATIONS ARE IN PROGRESS.
 - THE CONTRACTOR SHALL MAKE ALL WORKS AVAILABLE FOR THE INSPECTOR/SURVEYOR TO CARRY OUT THE NECESSARY INSPECTIONS AND SURVEYING BEFORE BACKFILLING IS COMMENCED.
 - SERVICES ARE APPROXIMATE ONLY. ALL RELEVANT SERVICE AUTHORITY'S ARE TO BE CONTACTED PRIOR TO THE COMMENCEMENT OF EXCAVATION TO ESTABLISH THEIR EXACT LOCATION.
 - CONTACT PRIOR TO COMMENCEMENT OF WORKS:
CITY OF GREATER GEELONG
POWERCOR
TELSTRA
TRU
VICTORIAN WORKCOVER AUTHORITY
 - ALL SERVICES ARE TO BE LOCATED ON SITE PRIOR TO ANY EXCAVATION.
 - INVERT LEVELS OF EXISTING SEWERS AND WATERMANS TO BE CHECKED PRIOR TO THE COMMENCEMENT OF WORKS.
 - CLASS 2 BACKFILL TO BE USED UNDER DRIVEWAYS FOR WATER AND SEWER RETICULATION.
 - PROPERTY OWNERS ARE TO BE NOTIFIED IN WRITING BY THE CONSULTANT 14 CLEAR DAYS PRIOR TO COMMENCEMENT OF WORKS.
 - COPY OF CADASTRAL MAP GRID (MGA) CONNECTION & COPY OF AUSTRALIAN HEIGHT DATUM (AHD) CONNECTION IS TO BE PROVIDED BY CONTRACTOR.
 - WORKS SHALL BE EFFECTED BETWEEN THE HOURS OF 8:00am AND 5:00pm MONDAY - FRIDAY. IN THE EVENT THAT WORKS ARE TO BE EFFECTED OUTSIDE THESE WORKING HOURS, A LETTER REQUESTING APPROVAL FOR SUCH OUT OF HOURS WORK SHALL BE LODGED TO THE SENIOR QUALITY AUDITOR.
 - THE CONTRACTOR SHALL COMPLY WITH SAFETY REQUIREMENTS RELATING TO WORKING NEAR POWER LINES AS SET BY THE CHIEF ELECTRICAL INSPECTOR WHERE NECESSARY AN ACCREDITED TRAINED SPOTTER IS TO BE PROVIDED.
 - WATER RESTRICTIONS ARE TO APPLY FROM MIDNIGHT JUNE 30th 2006, IN ACCORDANCE WITH BY-LAW NO. 187. ONLY TRIGGER HOSES (MAXIMUM SIZE 25mm) MAY BE USED FOR CONSTRUCTION WORK NOT INCLUDING TRENCHING. UNLESS OTHERWISE EXEMPTED BY THE AUTHORITY IN WRITING. MECHANICAL COMPACTION IS TO BE USED IN ACCORDANCE WITH MRWA SPECIFICATION 04-03 FOR TRENCH WORKS UNTIL FURTHER NOTICE. ANY WATER USED TO FLUSH WATER MAINS IS TO BE RECLAIMED AND USED FOR CONSTRUCTION PURPOSES.

- WATER**
- ENSURE WATERMANS ARE GRADED TO SUFFICIENT DEPTH UNDER ROADWAYS TO OBTAIN REQUIRED CLEARANCE UNDER STORM WATER DRAINS AND PAVEMENT LEVELS.
 - MARKER POSTS TO BE PLACED AT FIRE PLUGS. FIRE PLUG INDICATORS ARE TO BE IN ACCORDANCE WITH CFA & WSA REQUIREMENTS.
 - ALL ALLOTMENTS ARE TO BE PROVIDED WITH A WATER SERVICE AS PART OF WATER RETICULATION WORKS. THE WATER MAIN IS TO BE TAPPED USING A TAPPING SADDLE AND PRESSURE FERRULE (FERRULE TO BE LEFT OPEN). A MINIMUM SIZE SERVICE (i.e. 20mm COPPER, 25mm PE) IS THEN TO BE EXTENDED TO A POINT 500mm WITHIN THE PROPERTY. THE SERVICE IS TO BE A CONTINUOUS LENGTH WITH NO JOINTS. IN THE CASE OF PE OR ANY OTHER NON-METALLIC SERVICE BEING INSTALLED, A COPPER TRACE WIRE IS TO BE INCORPORATED. A BURIED BALL VALVE IS TO BE PLACED AT THE END OF THE SERVICE AND BACKFILLED WITH SAND TO DESIGN SURFACE LEVEL. DETECTOR TAPE FROM BALL VALVE TO BE RUN TO SURFACE LEVEL.
 - PE PIPE TO BE LAID IN ACCORDANCE WITH WSA-01 WITH LONG RADIUS BENDS OR DEFLECTION ONLY. NO COMPRESSION BENDS TO BE USED.
- AC PIPE NOTE**
- ANY WORK INVOLVING THE REMOVAL (CUTTING AND HANDLING), STORAGE, TRANSPORTATION AND DISPOSAL OF WASTE ASBESTOS CEMENT (AC) PIPES MUST BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL, HEALTH AND SAFETY (ASBESTOS) REGULATIONS 1992 AND RELEVANT CODES OF PRACTICE (REMOVAL), THE ENVIRONMENT PROTECTION (PRESCRIBED WASTE) REGULATIONS 1998 (STORAGE, TRANSPORTATION AND DISPOSAL), AND BARWON WATER'S SAFETY MANAGEMENT SYSTEM "SAFEAS".
- FITZROY BOXES ARE TO BE PLACED OVER MONT TAP (MT) OR ANY TAPPING LOCATED WITHIN THE ROAD PAVEMENT.
 - THRUST BLOCKS ARE TO BE CONSTRUCTED AS PER BARWON WATER STANDARD DRAWING No'S 70104, 70105 AND 70106
 - SWABBING OF WATER MAINS IS TO BE DONE IN ACCORDANCE WITH SECTION 6.7 AND SECTION 18 OF WSA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2002 MRWA EDITION 1
 - ALL WATER MAINS MUST BE HYDROSTATIC PRESSURE TESTED IN ACCORDANCE WITH SECTION 19.4 OF WSA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2002 MRWA EDITION 1.0. THE CONTRACTOR MUST GIVE BARWON WATER THREE WORKING DAYS NOTICE IN WRITING OF THE DATE AND TIME OF THE TEST. HYDROSTATIC PRESSURE TESTING TO ENSURE THAT BARWON WATER HAS THE OPPORTUNITY TO WITNESS THESE TESTS.

- SPECIAL**
- TRENCH COMPACTION RESULTS TO BE SUBMITTED BY CONSULTANT WITH 'AS CONSTRUCTED' NOTES.

- ALL LOTS ARE TO BE TAPPED USING A TAPPING SADDLE AND PRESSURE FERRULE.
- A MINIMUM SIZE SERVICE (IE 20MM COPPER, 25MM PE) IS THEN TO BE EXTENDED TO A POINT 500MM WITHIN THE PROPERTY.
- SERVICE PIPE BETWEEN MAIN FERRULE AND BALL VALVE TO BE A CONTINUOUS LENGTH (IE NO JOINTS)
- SERVICE TO BE TYPE 'B' COPPER OR CLASS 12 TYPE 50 PE.
- IN THE CASE OF PE OR ANY OTHER NON-METALLIC SERVICE BEING INSTALLED, A COPPER TRACE WIRE IS TO BE INCORPORATED.
- A BURIED BALL VALVE IS TO BE PLACED AT THE END OF THE SERVICE.
- DETECTOR TAPE IS TO BE RUN TO SURFACE LEVEL.
- BALL VALVE TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS (IE STAMPED 'W') BRASS FITTING WITH STAINLESS STEEL BALL.



LEGEND - WATER PLAN

- Stormwater Drain & Pit
- Water Main
- Change of Pipe Size
- Mains Not Connected
- Mains in Conduit
- Valve
- Non Return Valve
- Fire Plug
- Dead End Cap
- Existing Electricity (Underground)
- Existing Electricity (Overhead)
- Existing Gas
- Existing Telstra
- Existing Water
- Existing Stormwater Drain
- Existing Sewer
- Existing Surface Level
- Finished Building Line Level
- Finished Ridge Line Level
- Permanent Survey Mark
- Temporary Bench Mark
- Swab Direction

PIPE TYPES

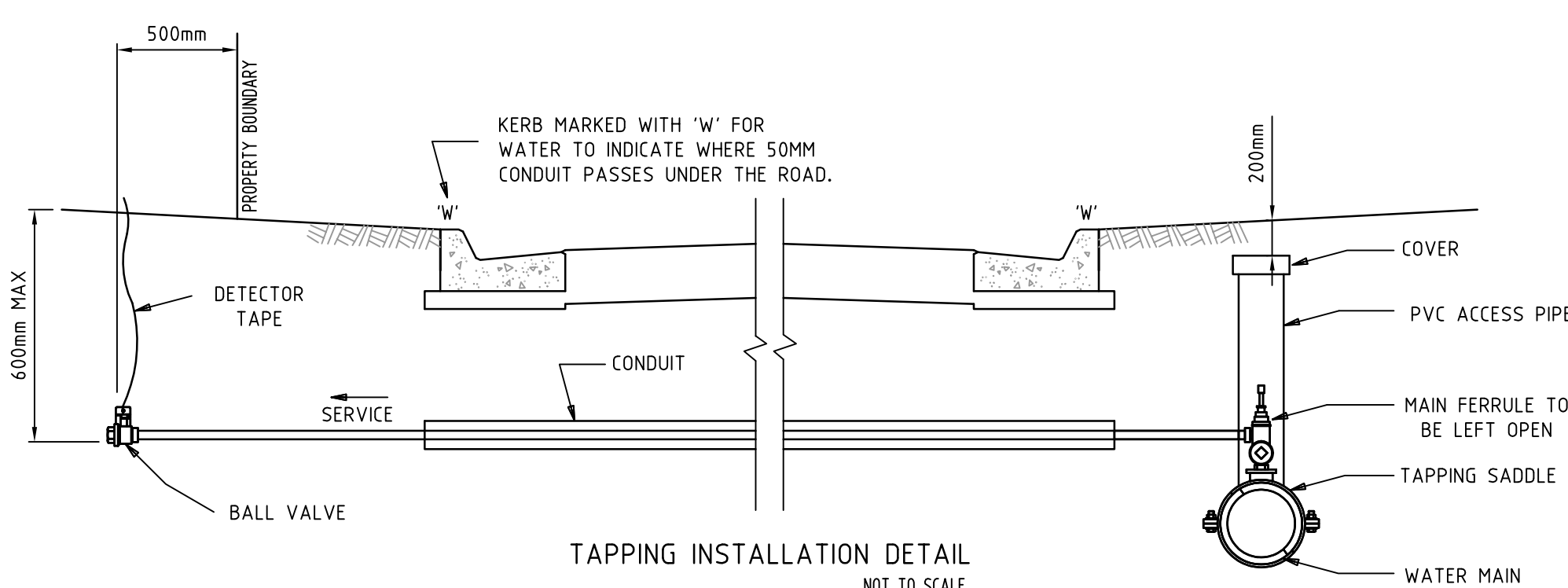
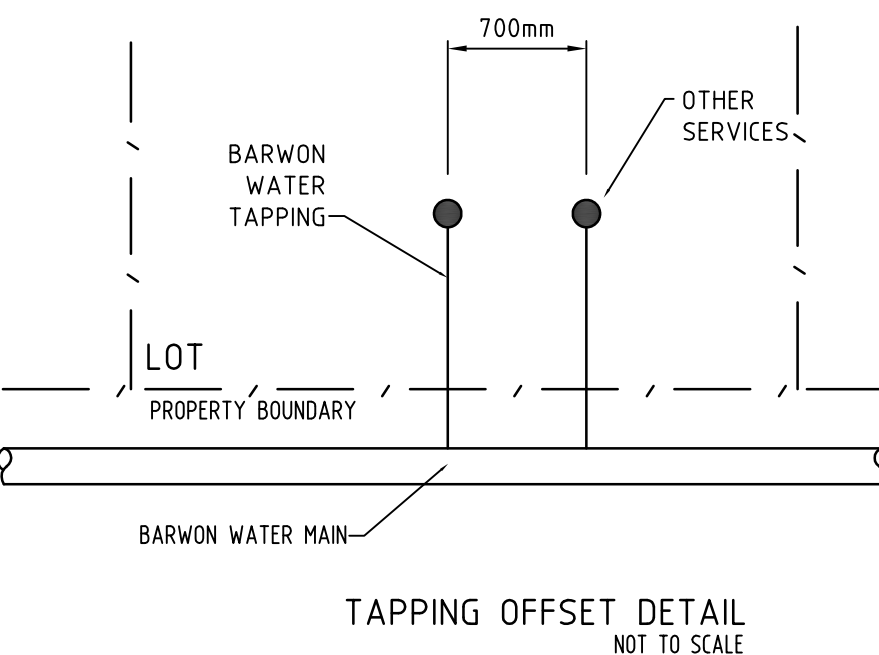
- AC: ASBESTOS CEMENT
- CICL: CAST IRON CEMENT LINED
- DICL: DUCTILED CEMENT LINED
- MSCL: MILD STEEL CEMENT LINED
- PVC: POLYVINYL CHLORIDE
- PE: POLYETHYLENE (AS SPECIFIED)
- RC: REINFORCED CONCRETE
- VC: VITREOUS CLAY

THRUST RESTRAINT SCHEDULE

LOCATION	TYPE	AREA (m ²)	NUMBER
A SEASHORE WAY	CONCRETE	0.80	1
B SEASHORE WAY	CONCRETE	0.80	1
C TREEFERN STREET	CONCRETE	0.16	1
D VILLAGE GREEN DRIVE	CONCRETE	0.67	1
E VILLAGE GREEN DRIVE	CONCRETE	0.80	1
F VILLAGE GREEN DRIVE	CONCRETE	0.900	1
G TREEFERN STREET	CONCRETE	0.380	1

NEW WATER MAINS

SIZE	TYPE	LENGTH
100	PVC (CL-16)	153.8m
150	PVC (CL-16)	160m
225	PVC (CL-16)	108.5m



SURVEY STATIONS (HORIZONTAL - ARBITRARY, VERTICAL - AHD)

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	10106.39	48560.27	21.19	ROD
ROD502	10309.58	48587.59	28.62	ROD
MOOLAP PM69	1000.00	50000.00	-	BRASS PLAQUE
MOOLAP PM321	9897.742000	48994.921	9.436	BRASS PLAQUE
MOOLAP PM302	10212.03	48959.504	22.180	BRASS PLAQUE

SURVEY CONTROL

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	277245.07	5768919.27	21.19	ROD
ROD502	277448.31	5768946.60	28.62	ROD
MOOLAP PM69	277138.66	5770359.31	-	BRASS PLAQUE
MOOLAP PM321	27704.0	57694.80	9.436	BRASS PLAQUE
MOOLAP PM302	277310	5769280	22.180	BRASS PLAQUE

WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
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SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
VILLAGE GREEN DRIVE E-W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
TREEFERN STREET	EAST	2.10	EAST	2.70	EAST	2.30	EAST	1.70
VILLAGE GREEN DRIVE	WEST	2.10	WEST	2.70	EAST	2.30	EAST	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
SEASHORE WAY	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70

WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

REVISION	DATE	DES/DFT	APPD
B BARWON WATER AMENDMENTS	01.09.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	21.07.11	CB/CB	JG

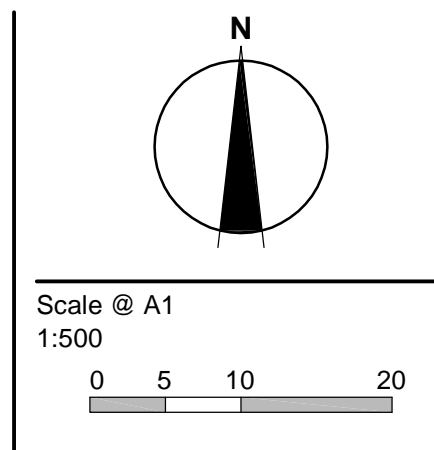
estuary
LEOPOLD™

Principal
Leopold Property Development Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Construction Notes

- Construction of the sewer and water mains is to be in accordance with the Barwon Water standard specifications "Construction of gravity sewers and rising mains" and "Construction of water mains".
- Every endeavour to ensure the location of all existing services on the plan are correct. However actual locations are to be checked on site prior to commencement of excavations.
- Nominal size of water mains indicated in millimetres & offsets are indicated in metres.
- All sewer pipes are 150mm unless otherwise shown.

Designed
C. Barker
Drawn
C. Barker
Checked
C. Birkett
Authorised
J. Golden
Date
June 2011



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consulting group

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Barwon Region Water Authority
Barwon Water No. L007289
Estuary
Stage 9
Water Detail Plan

Drawing No. 0250EHL-09-61 Rev B
Sheet No. 1 of 1

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