



ESKOM HOLDINGS LIMITED

PROJECT: ESKOM KUSILE POWER STATION

DESCRIPTION: Construction of the Ash Dump Embankment Culvert

METHOD STATEMENT – Construct a culvert under the ash dump access embankment as part of the CSY Stream Diversion design to accommodate the 1:100 year, instantaneous flood peak event

WMS 5452/110/014 (Rev 1)

Date: November 2010



ESKOM KUSILE POWER STATION

WMS 5452/110/014 (Rev 1)

CONSTRUCTION OF THE ASH DUMP EMBANKMENT CULVERT

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ACRONYMS

CEMP	Construction Environmental Management Plan
EO	Contractor's Environmental Officer
OHSA	Occupational Health and Safety Act
WC	Watercourse Crossing
WMS	Work Method Statement
WUL	Water Use Licence

APPENDICES

APPENDIX 1: Drawings

ESKOM KUSILE POWER STATION

WMS 5452/110/014 (Rev 1)

CONSTRUCTION OF THE ASH DUMP EMBANKMENT CULVERT

1. PROPOSED ACTIVITY:

- 1.1 Construct a culvert under the ash dump embankment as part of the Stream Diversion design to accommodate the 1:100 instantaneous flood peak event. The culvert will consist of three parallel Armco KA46 culverts (4.94m diameter) between a concrete inlet and outlet structure.

2. WHAT WORK IS TO BE UNDERTAKEN

- 2.1 The works comprise construction of a three culvert system to pass all clean storm-water that is collected in the Coal Stockyard (CSY) stream diversion channel under the ash dump embankment. The culverts have a capacity to pass the design flow of 83.5 m³/s while flowing partially full.

3. WHERE THE WORKS ARE TO BE UNDERTAKEN

- The location of the Ash Dump Embankment Culvert is presented on drawing K5406-036 in Appendix 1.
- The Ash Dump Embankment Culvert is located to the west of the main power station terrace, in the natural streambed, underneath the ash dump embankment.
- The Ash Dump Embankment Culvert is located in the streambed of the non-perennial tributary of the Klipfonteinspruit River. It is positioned in the wetland area and is anticipated to have poor foundation materials. Excavation of unsuitable foundation materials will be required.

4. START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED

- 4.1 Construct Ash Dump Embankment Culvert

START DATE: January 2012
END DATE: December 2012

5. HOW THE WORKS ARE TO BE UNDERTAKEN

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5.1 General

Works will be carried out in accordance with the design drawings and the specifications and in accordance with the following:

- The content of this WMS will be brought to the attention of all persons associated with the project and such measures as are necessary will be put in place to bind these persons to the requirements herein
- A copy of this WMS will be on site with the appropriate personnel at all times
- The general methodology set out in the following sections.

Note: Routine plant maintenance will be done only in the Contractors Yards using the workshop facilities.

Table1: Schedule of Drawings (Refer Appendix 1)

DRAWING NUMBER	REV	DESCRIPTION
5406-036	5	ASH DUMP ACCESS EMBANKMENT CULVERT GA
5406-085	1	ASH DUMP EMB. CULVERT INLET REINFORCEMENT SCHEDULES AND DETAILS SHEET 1
5406-086	1	ASH DUMP EMB. CULVERT INLET REINFORCEMENT SCHEDULES AND DETAILS SHEET 2
5406-088	1	ASH DUMP EMB. CULVERT OUTLET REINFORCEMENT SCHEDULES AND DETAILS SHEET 1
5406-089	1	ASH DUMP EMB. CULVERT OUTLET REINFORCEMENT SCHEDULES AND DETAILS SHEET 2
5406-094	2	ASH DUMP EMB. CULVERT CONCRETE LAYOUT & DETAILS 1/2
5406-095	2	ASH DUMP EMB. CULVERT CONCRETE LAYOUT & DETAILS 2/2

Table 2: Schedule of Applicable Reports

REPORT REF.	DATE	DESCRIPTION
27/2/1/B620/103/6	Jan/09	INTEGRATED WATER USE LICENCE (WUL)
*Wetland Consulting	Aug/09	ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE ESKOM KUSILE POWER STATION PROJECT
4446/401281	Aug/09	PROJECT BRAVO DRAFT CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

5.2 Risk assessment

All construction activities will be subject to a risk assessment to ensure personnel safety.

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5.3 Environmental Assessment

All construction activities will be managed and monitored in accordance with Eskom's formal site environmental specification.

5.4 Hours of operation

All construction activities will be carried out between 00:00 and 24:00.

5.5 Construction of the Ash Dump Embankment Culvert

5.5.1 Temporary construction phase storm-water channels and silt traps will be provided around the Ash Dump Embankment Culvert construction site before construction commences, to divert clean run-off and to manage site storm-water run-off for the control of silt discharge to stream. Because the Ash Dump Embankment Culvert is in the stream course, an upstream diversion dam must be installed, and any water accumulating behind the dam will be either pumped or gravitated around the construction area, per the contractor's design.

5.5.2 Excavation into natural ground will be necessary for the Ash Dump Embankment Culvert. Excavated material that is determined by the engineer to be suitable as fill material may be used in the ash dump embankment or other fill areas. However, in the stream bed excavated material is not expected to be suitable as fill. Unsuitable material will be disposed to a formal stockpile.

5.5.3 The Ash Dump Embankment Culverts will have a finished gradient of roughly 1.8%. Occasional cleaning of sediment from within the culvert barrels is expected.

5.5.4 Topsoil and organic material will be excavated and stockpiled for use in the later dressing of completed embankments at Kusile Power Station, ahead of grassing.

5.5.5 The culvert barrels will be provided with a concrete liner to the bottom third of the inner circumference, for protection against damage from larger debris that could enter the structure.

5.5.6 The exposed upper two thirds of steel will be coated with an ABE under-body sealer per the supplier's recommendations, to prevent corrosion and increase the life of the structures.

5.5.7 The inlet and outlet of the Ash Dump Embankment Culvert will be concrete structures that both secure the culvert barrels and prevent erosion at the entry and discharge points.

5.5.8 The Ash Dump Embankment Culvert will be confined within the bounds of the power station perimeter fence.

6 ENVIRONMENTAL MANAGEMENT STRATEGY

6.1 Environmental Impact Management

Changes and impacts to hydrology at landscape level; increased erosion and deterioration of water quality (turbidity) are addressed in the construction phase planning of the Ash Dump Embankment Culvert, by the incorporation of sound

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environmental design principles as set out in the *Integrated Water Licence Application for the Kusile Power Station Project*. Nevertheless, certain activities and aspects associated with the actual construction of the ash dump embankment culvert and its components according to these designs may still cause impacts as a result of how these activities are undertaken, where, when and the duration thereof. These include:

- Clearing of the Ash Dump Embankment Culvert footprint (including extending activities beyond the maximum impact foot print)
- Establishment and management of the contractor’s yard, bulk material storage areas, and topsoil stockpile areas
- Management of construction materials (movement, storage, preparation and handling)
- Management of machinery (movement, storage, maintenance)
- Management of sanitation and waste (movement, storage)
- Management of storm water
- Management of sediment (structures and containment); and
- Rehabilitation.

Possible impacts associated with these activities are listed in Table 3 below along with environmental significance ratings pre- and post mitigation (i.e. indicating effectiveness of the mitigation measures set out in Table 4).

Table 3: Impacts and Significance Ratings

Impact	Environmental Significance	
	Before Mitigation	After Mitigation
Alteration of storm-water flow regimes, including but not limited to:		
~ Concentrated flows	Moderate	Low
~ Sheet flows	Moderate	Low
Deterioration of water quality (mainly turbidity), including but not limited to:		
~ Sedimentation	Moderate	Low
~ Accidental spills (hydrocarbons, other hazardous chemicals)	Low	Low
~ Contamination via storm-water runoff	Low	Low

The measures to manage the above impacts as derived from the documents listed in Table 3 are presented in Table 4.

Table 4: Mitigation Measures

Impact	Measures (What and Where)	When, Duration	Responsibility
General (relevant to all impacts)	Environmental awareness training must be provided for all contractors and workers, appropriate to the activity and addressing the mitigation measures contained in the documents listed in Table 4 as well as in this work method statement	Before construction commences	Contractor’s EO
	A maximum impact footprint must be appropriately delineated and sign	Before construction commences	Contractor

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Impact	Measures (What and Where)	When, Duration	Responsibility
	posted		
	Sensitive areas not within the impact footprint must be clearly demarcated and sign posted "No Go"	Before construction commences	Contractor's EO
	Construction camps shall be located outside the extent of any watercourse and must be recovered and removed shortly after construction has been completed – also refer P15 of the CEMP	Ongoing (Removal within 3 weeks of completion of construction)	Contractor
	Machinery and equipment must be kept in good working order	Ongoing (duration of construction phase)	Contractor
Deterioration of water quality (mainly turbidity), including but not limited to: ~ Sedimentation ~ Accidental spills (hydrocarbons, other hazardous chemicals) ~ Contamination via stormwater runoff	Standard best environmental practice housekeeping rules must be applied with regards to refuse management, ablutions, fire prevention etc.) – refer P7-9 of CEMP (Framework EMP)	Duration of crossing construction	Contractor
	Storage, washing and maintenance of equipment and machinery must be undertaken outside the extent of any watercourse and only in demarcated areas where runoff and spills are managed in an environmental sound manner	Ongoing (duration of construction phase)	Contractor
	Sanitation and waste management facilities must be located outside of the extent of a watercourse and must be managed in an environmental sound manner	Ongoing (duration of construction phase)	Contractor
	Materials must be stored outside the extent of any watercourse, and transported and prepared/handled in an environmentally sound manner, in compliance with relevant legislation - discharges into watercourses must be prevented as far as reasonably possible and stockpiles must be protected from erosion	Ongoing (duration of construction phase)	Contractor
	An emergency plan (i.e. measures for prevention, detection, management and reporting) must be prepared for dealing with accidental spills and leaks in compliance with relevant legislation and regulations	Ongoing (duration of construction phase)	Contractor
	Sediment traps and fencing must be utilised to prevent excess levels of sediments entering watercourses from work areas and afterwards disposed of in accordance with Kusile Waste Management Procedures	Ongoing (duration of construction phase)	Contractor
	Contamination of stormwater runoff must be prevented	Ongoing (duration of construction phase)	Contractor
	Stormwater must be diverted into vegetated buffer zones and not directly into surface water – concentrated flows must be prevented and velocities may not exceed 0.5m/s	Ongoing (duration of construction phase)	Contractor

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6.2 Monitoring and Review Strategy

Monitoring and reporting will be undertaken as set out in Table 5, below. Steps for non-compliance with this method statement are provided for on pages 29-30 of the CEMP.

Table 5: Monitoring and Review Measures

What	Where	When	Responsibility	Reporting Requirements
Monitoring for erosion	Approaches to, and the actual wetland and stream crossings	One weekly inspection, or after a rainfall event	Contractor's EO	Refer WUL, P7 and 8
Monitoring of the movement, storage and handling of construction materials	Active construction sites	Twice weekly inspections	Contractor's EO	
Monitoring of movement of machinery	Active construction sites	Twice weekly inspections	Contractor's EO	
Monitoring of other construction related activities	Active construction sites for the duration of the activity	Twice weekly inspections	Contractor's EO	
Monitoring of water quality (turbidity)	10m downstream of a construction site	The first measurement before construction commences and a second not later than 3 hours after the commencement of construction related activities Ad hoc measurements must be taken opportunistically during the construction period	Contractor's EO	
Emergency and pollution incidents ¹	All sites	At all times	Contractor's EO	Section 19 and 20 of the National Water Act

¹ Pollution means the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it: (a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or (b) harmful or potentially harmful - (aa) to the welfare, health or safety of human beings; (bb) to any aquatic or non-aquatic organisms; (cc) to the resource quality; or (dd) to property

7 RESPONSIBILITIES AND PRESCRIBED OCCUPATIONS

The various responsibilities and occupations involved in the execution of this WMS are detailed in the following sections.

7.1 Design Engineer

The Design Engineer is Panel B Consultants JV.

The role of the Design Engineer is:

- To design the Kusile Ash Dump Embankment Culvert to the required national and regional standards;

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- To produce the construction drawings to enable the Rail Embankment Culvert to be built;
- To design the temporary construction phase storm-water management facilities;
- To provide a Bill of Quantities for the Kusile Ash Dump Embankment Culvert.

The Design Engineer's responsibilities are:

- To ensure that all designs are supplied correctly and in a timely manner;
- To provide Design Liability Insurance.

7.2 Contractor

The role of the Contractor is:

- To construct the Kusile Ash Dump Dirty Dam in accordance with the "approved for construction drawings" and the required specification.
- To provide all safety, quality and environmental paperwork in due time and to the required standard. All work is to be carried out in accordance with the national Occupational Health and Safety Act (OSHA) and environmental authorisations (including the WUL).

The Contractor's responsibility is:

- To produce and maintain the construction programme, whereby prior to construction commencement, the Contractor shall compile, complete and provide a list of anticipated or potential construction delays.

7.3 Contractor's Site Manager

The Site Manager for the project will be the Kusile Project.

The role of the Site Manager is:

- To ensure that all personnel, materials and equipment are available and in good order to complete the required works to the required standards.

The Site Manager's responsibility is:

- To programme the works to ensure that the contract is completed within the contract period.

7.4 Contractor's Environmental Officer (EO)

The role of the EO is:

- To ensure compliance with the environmental authorisations and CEMP and any other relevant legislation; and
- To pre-empt environmental problems and provide constructive solutions
- To ensure a pre-construction investigation and report on endangered and other species is carried out.

The EO's responsibilities are:

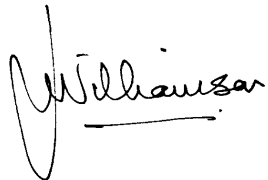
- To monitor the Contractor and the Projects performance against the necessary standards outlined within the legislation; ie R.O.D., EIA, EMP and DWA licence conditions
- To report to and be accountable to the Environmental Monitoring Committee; and
- To report any non-compliance to the relevant authority.

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DECLARATIONS:

1. DESIGN ENGINEER

The work described in this Method Statement, if carried out according to the methodology described is satisfactorily mitigated to prevent avoidable environmental harm.



JRG Williamson Pr. Eng.

(Signed)

(Print Name)

Dated: 1 November, 2010

2. SITE MANAGER

I understand the contents of this Method Statement and the scope of the works required from me.

(Signed)

(Print Name)

Dated: _____

3. APPROVING AUTHORITY (EO)

The works described in this method statement are approved

(Signed)

(Print Name)

(Designation)

Dated: _____

APPENDIX 1

DRAWINGS

CONSTRUCTION NOTES:

- THE FOUNDATION DESIGN IS BASED ON THE EXPECTED FOUNDATION CONDITIONS. FOLLOWING FULL EXCAVATION, THE GEOTECHNICAL ENGINEER MAY SPECIFY CHANGES TO THE DESIGN IF UNFORESEEN FOUNDATION CONDITIONS ARE ENCOUNTERED.

FOUNDATIONS

- EXPECTED FOUNDATION CONDITIONS ARE AS FOLLOWS:
A RESIDUAL TILLITE AT THE DEPTH OF THE CULVERT FOUNDATION UNDERLAIN BY SOFT WEATHERED DIABASE BEDROCK. CONSOLIDATION OF THE FOUNDATION SOILS IS EXPECTED.
- EXCAVATE UNSUITABLE MATERIAL BELOW THE CULVERT OVER A WIDTH OF 31m UNTIL A SATISFACTORY FOUNDATION WITH 300kPa (MIN) BEARING CAPACITY IS ACHIEVED. ENGINEER MUST BE NOTIFIED IF THE BEARING CAPACITY IS NOT ACHIEVED AT THE DESIGN LEVEL EXCAVATION, ENGINEER WILL SPECIFY IF EXCAVATION CONTINUES OR AN ALTERNATE DESIGN IS ADOPTED.
- FOLLOWING EXCAVATION OF UNSUITABLE MATERIALS, 250mm THICK LIFTS OF STRUCTURAL BACKFILL IS TO BE PLACED AND COMPACTED AS PER THE STRUCTURAL BACKFILL SPECIFICATIONS BELOW, TO A MINIMUM OF 250mm THICK.

BACKFILLING

- STRUCTURAL BACKFILL IS TO BE PLACED TO THE EXTENTS SHOWN ON SECTION C AS A MINIMUM. B&V DRAWING S3091 CALLS FOR GROUP A OR GROUP D SOILS FOR THE REMAINDER OF THE RAIL EMBANKMENT.
- THE STRUCTURAL BACKFILL WILL IDEALLY BE A WELL-GRADED ANGULAR SAND AND GRAVEL. UNIFORM SAND OR GRAVEL, MIXED, OR STABILIZED SOILS MAY BE USED IF APPROVED BY THE GEOTECHNICAL ENGINEER, G7 OR BETTER IS REQUIRED.
- THE STRUCTURAL BACKFILL SHOULD CONFORM TO THE FOLLOWING SPECIFICATIONS: MINIMUM GRADING MODULUS (G.M.) 0.8; MAXIMUM PLASTICITY INDEX (P.I.) 10 + 3 G.M.; MINIMUM CBR AT COMPACTED DENSITY 15%; MINIMUM COMPACTED DENSITY (MOD AASHTO) 96% MAXIMUM % PASSING 75 MICRON SIEVE 40%.
- THE FOUNDATION BACKFILL WILL BE PREPARED WITH A 500mm CENTRAL CAMBER TO ENSURE A UNIFORM GRADIENT THROUGH THE CULVERT BARREL AFTER FULL CONSOLIDATION OF THE FOUNDATION SOILS HAS OCCURRED.
- STRUCTURAL BACKFILL WILL BE PLACED AND COMPACTED IN 150mm LIFTS (MAX) ON ALTERNATING SIDES OF THE CULVERT TO ENSURE THOROUGH AND UNIFORM COMPACTION ALONG THE LENGTH OF THE CULVERTS.
- MANUAL PLACEMENT OF FILL UNDERNEATH THE HAUNCHES IS REQUIRED. COMPACTION IS TO BE DONE BY HAND TAMPERS OR SUITABLE MECHANICAL EQUIPMENT.
- COMPACTION IN THE CORRUGATION VALLEYS AND IMMEDIATELY NEXT TO THE PIPE SHOULD BE DONE BY HAND OPERATED METHODS. HEAVY COMPACTION EQUIPMENT SHOULD REMAIN APPROXIMATELY 1000mm FROM THE PIPE; MONITORING OF THE PLUMB AND DIMENSION OF THE STRUCTURE WHEN HEAVY EQUIPMENT IS OPERATING NEARBY IS IMPORTANT TO ENSURE THE STRUCTURAL INTEGRITY OF THE CULVERTS.
- ALL EQUIPMENT SHOULD OPERATE PARALLEL TO THE LENGTH OF THE CULVERTS TO AVOID CREATING AREAS OF UNCOMPACTED BACKFILL.
- THE CONTRACTOR IS REQUIRED TO MAINTAIN DRY FOUNDATION AND BACKFILL CONDITIONS DURING CONSTRUCTION.

CONCRETE WORKS

13. ALL CONCRETE WORKS ARE TO COMPLY WITH ESKOM DOCUMENT NO. 203-770, 'SPECIFICATIONS FOR STRUCTURAL CONCRETE'.

ARMCO CULVERT SPECIFICATIONS

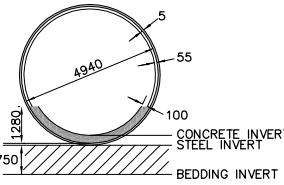
- 3 x MP200 KA46, 362m TOTAL LENGTH
- 5mm PLATE THICKNESS
- STEEL PLATES ARE HOT-DIP GALVANIZED TO SABS 1461 STANDARD.
- 100mm THICK CONCRETE IS TO BE PLACED IN THE BOTTOM THIRD OF THE CULVERT.
- ABE UNDERBODY SEALER IS TO BE APPLIED TO THE EXPOSED INTERNAL STEEL (UPPER TWO THIRDS).
- THE CONTRACTOR MUST COMPLY WITH ALL OF THE SPECIFICATIONS AND REQUIREMENTS STIPULATED BY THE CULVERT MANUFACTURER (EX STEEL CUT TREATMENT, BOLT TORQUE, ASSEMBLY PROCEDURES, ETC.). REFER TO MANUFACTURER'S DRAWINGS/SPECIFICATIONS.

TEMPORARY DIVERSION

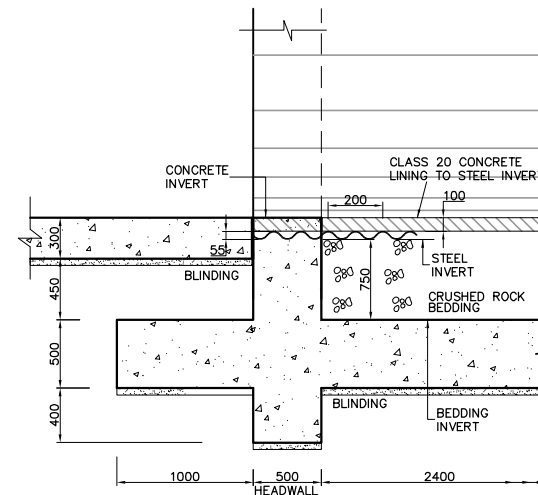
- A TEMPORARY DIVERSION EMBANKMENT AND CULVERT OR PUMPING SYSTEM IS TO BE DESIGNED BY THE CONTRACTOR AND CONSTRUCTED UPSTREAM OF THE ASH DUMP ACCESS EMBANKMENT CULVERT. THE TEMPORARY STRUCTURE SHOULD HAVE A 4m WIDE EMBANKMENT AT THE CREST WITH 3:1 DOWNSTREAM AND 2:1 UPSTREAM EMBANKMENT SLOPES.

ASH DUMP EMBANKMENT CULVERT QUANTITIES			
ITEM	UNIT	QUANTITY	
ENTRANCE STRUCTURE CONCRETE	m ³	160	
ENTRANCE STRUCTURE STEEL	kg	17600	
EXIT STRUCTURE CONCRETE	m ³	165	
EXIT STRUCTURE STEEL	kg	18150	
ARMCO MP200 KA46, 5mm PLATE	m	250	
INTERNAL CONCRETE LINING	m ³	529	
ABE UNDERBODY SEALER	l	3743	
500mm OD HALF ROUND CHANNEL	m	64	
HEADWALL RUNOFF DRAIN BOX (x2)	m ²	1	
STRUCTURAL BACKFILL	m ³	9122	
CRUSHED ROCK BEDDING	m ³	1682	

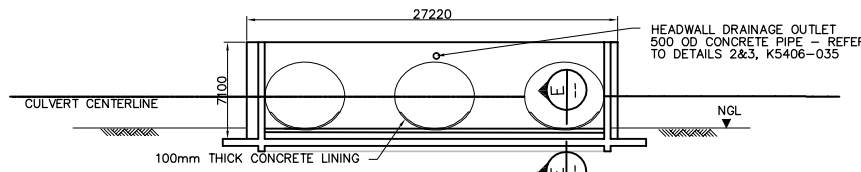
SETTING OUT COORDINATES			
REF. ID	NORTHERN (Y)	EASTERN (X)	
C5	9826.3253	8802.9947	
C6	9842.1660	8793.4418	
C7	9911.3243	8751.7350	
C8	9928.1155	8741.6088	



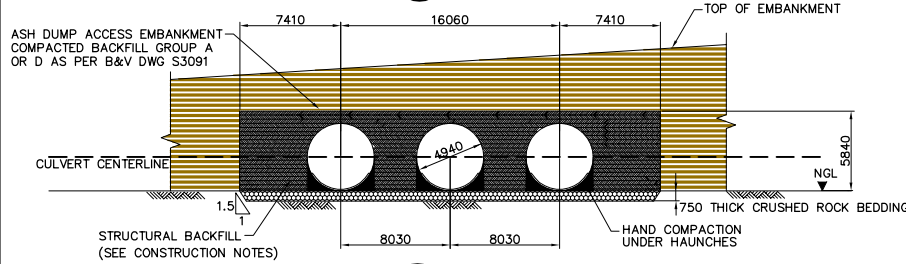
SCHEMATIC SECTION SHOWING CONCRETE LINING AND BEDDING
NOT TO SCALE



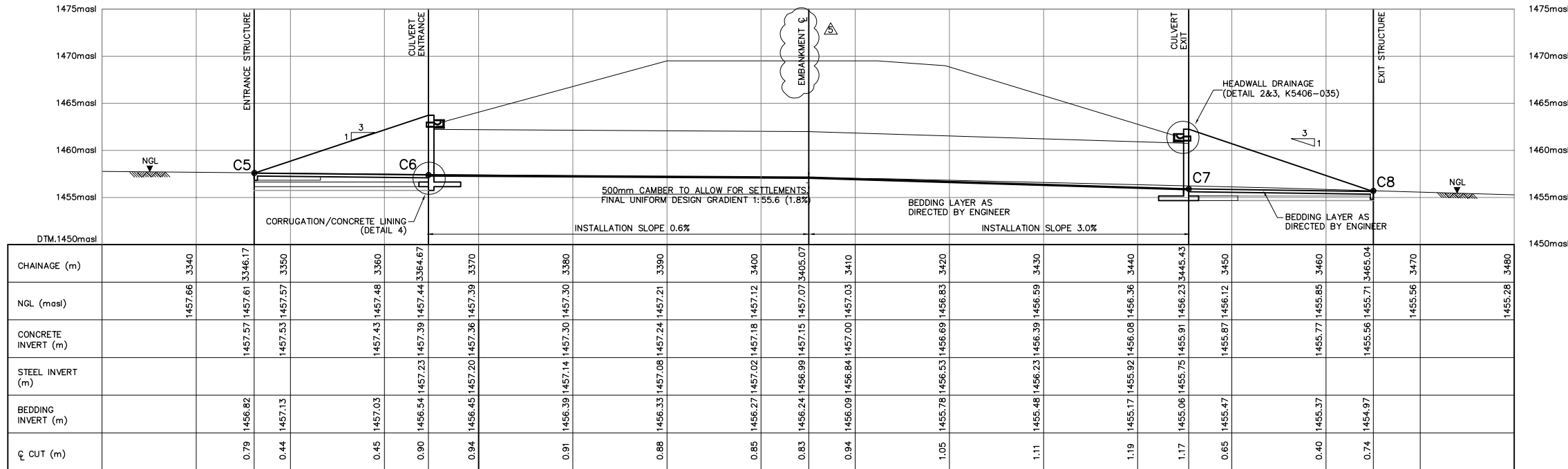
SECTION E CORRUIGATION/CONCRETE LINING DETAIL 4
SCALE 1:20



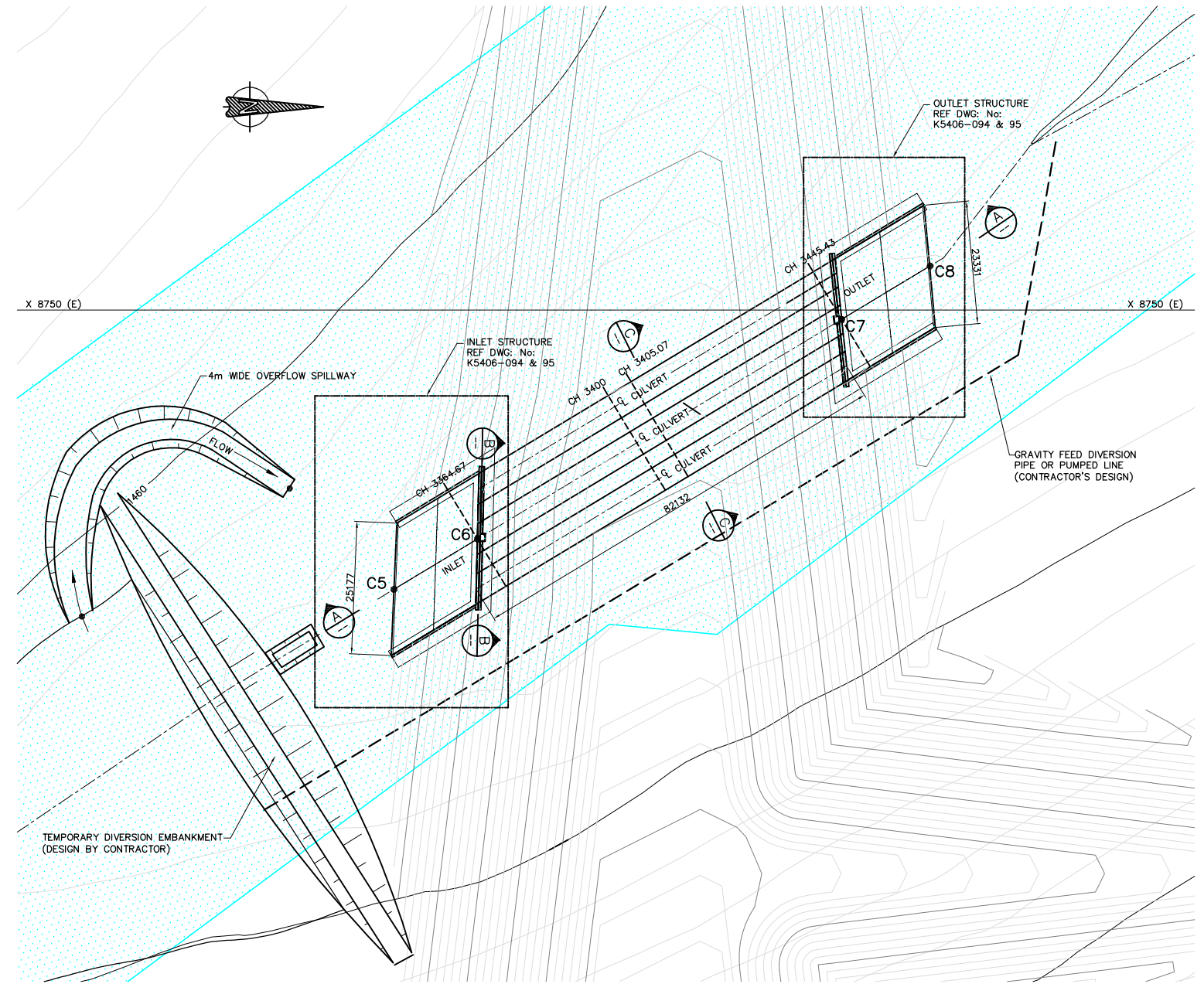
SECTION B CONCRETE HEADWALL AT ENTRANCE STRUCTURE
SCALE 1:200



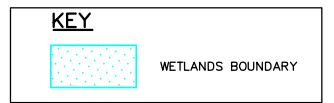
SECTION C BACKFILL DETAILS
SCALE 1:200



SECTION A CULVERT PROFILE
SCALE 1:200

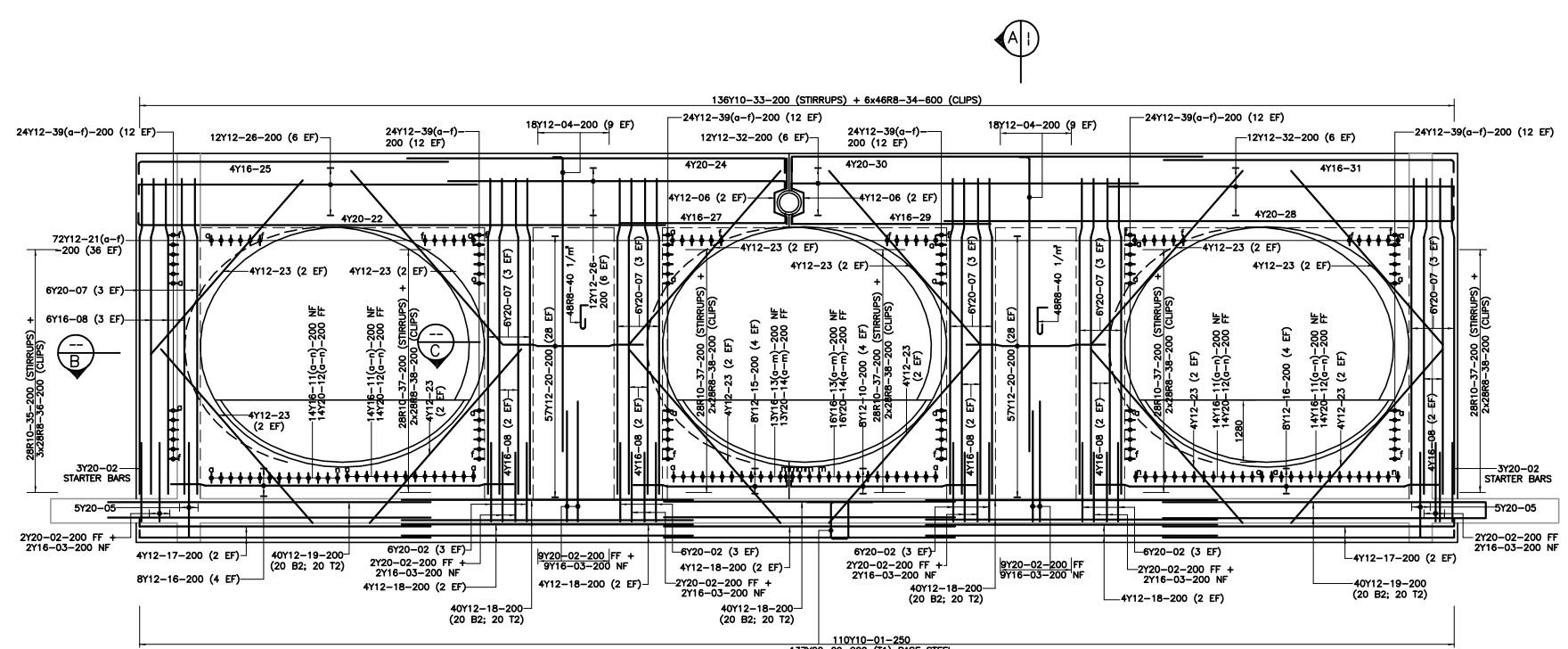


GENERAL ARRANGEMENT PLAN VIEW (ref: 146838-OGUA-S3007)
SCALE 1:400

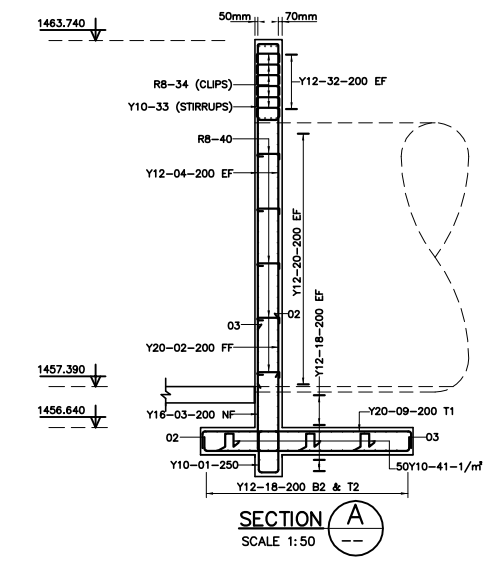


NO.	DATE	REVISION	BY	CHECKED BY	DATE	REVISION	BY	CHECKED BY	DATE
1	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	1	JW	JW	01/04/10
2	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	2	JW	JW	01/04/10
3	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	3	JW	JW	01/04/10
4	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	4	JW	JW	01/04/10
5	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	5	JW	JW	01/04/10
6	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	6	JW	JW	01/04/10
7	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	7	JW	JW	01/04/10
8	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	8	JW	JW	01/04/10
9	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	9	JW	JW	01/04/10
10	01/04/10	ISSUED FOR COMMENT AND APPROVAL	JW	JW	01/04/10	10	JW	JW	01/04/10

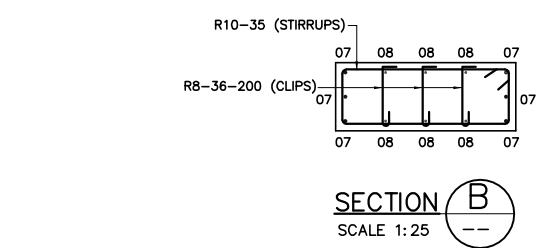
KUSILE POWER STATION
ASH DUMP ACCESS EMBANKMENT CULVERT: GENERAL ARRANGEMENT
DRG. No. K 5406-036
SCALE: 0.90/968



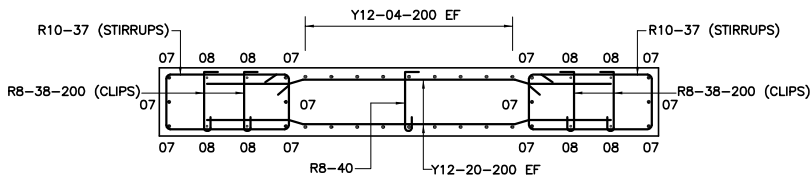
INLET ELEVATION (A)
SCALE 1:50



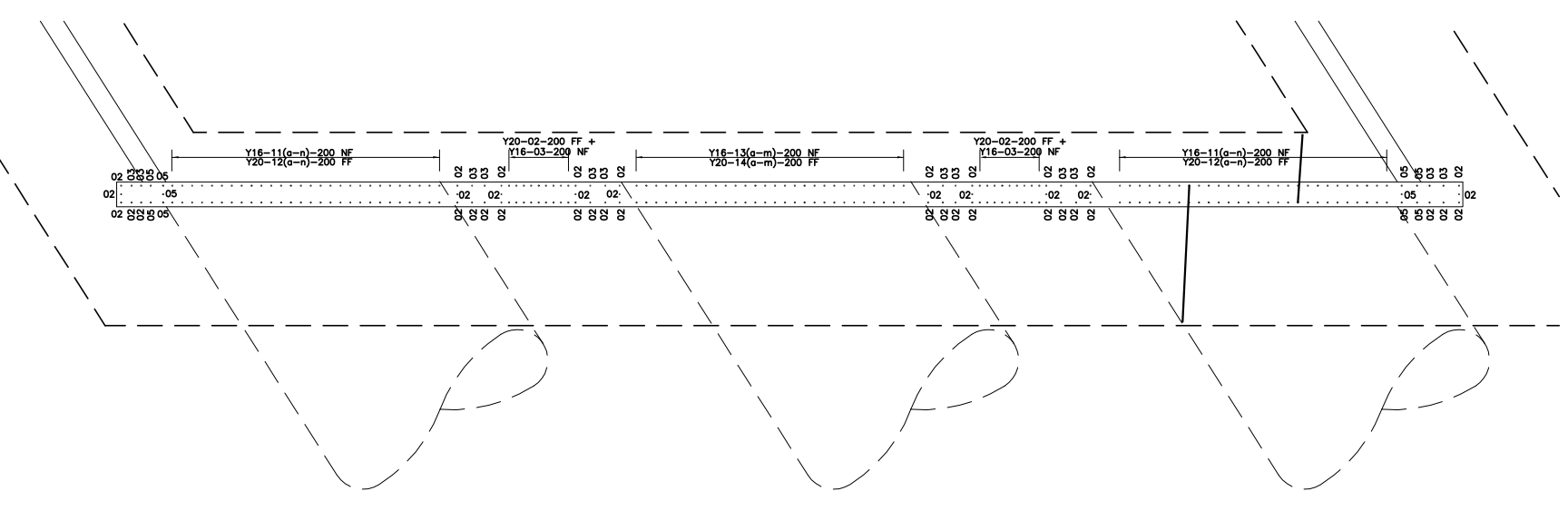
SECTION A
SCALE 1:50



SECTION B
SCALE 1:25

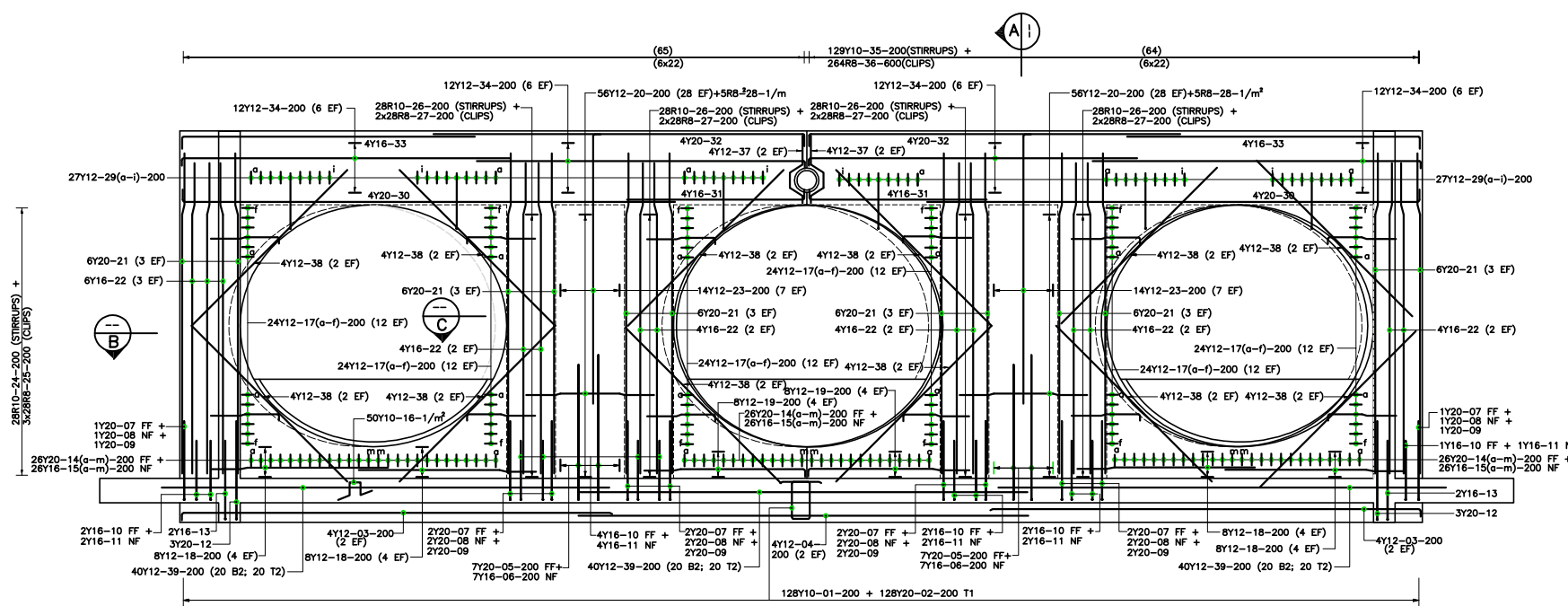


SECTION C
SCALE 1:25

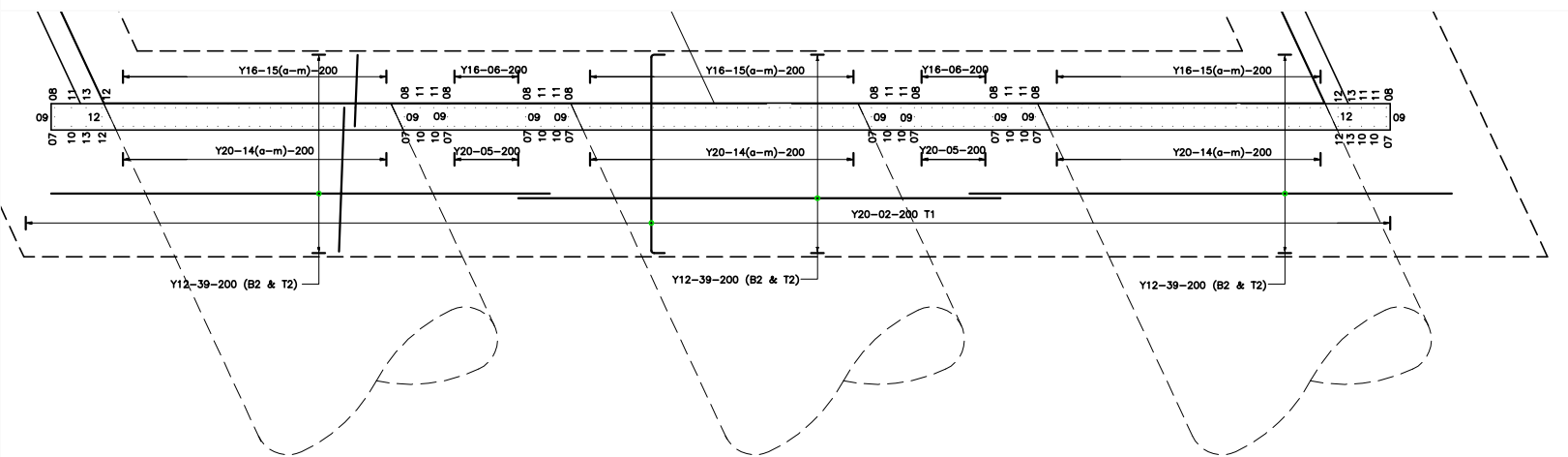


PLAN ON STARTER BARS (INLET WALL)
SCALE 1:50

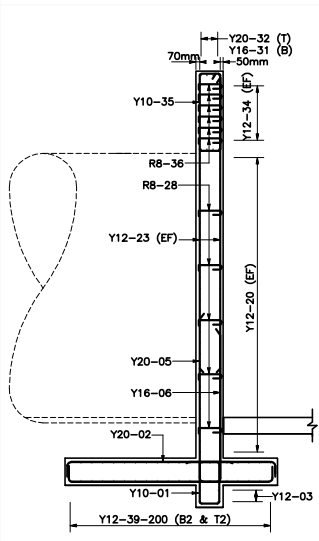
MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM BER	MARK	S	BENDING				
								A	B	C	D	E/r
INLET RC WALL REINFT.	1	110	Y10	3000	110	01	55	600	760	380	760	(600)
		60	Y20	4100	60	02	38	2500	1380	(300)		
		30	Y16	5300	30	03	38	2300	2750	(300)		
		36	Y12	6100	36	04	34	6000				
		10	Y20	2250	10	05	37	3000(2000)				
		8	Y12	1700	8	06	43	600	260	400	250 (150)	
		36	Y20	6450	36	07	41	5250	200(1000)			
		26	Y16	6450	26	08	41	5250	200(1000)			
		137	Y20	4050	137	09	36	3750				
		8	Y12	3900	8	10	52	600	100	3100	30	
		4	Y16	5500	4	11a	52	200	2750	2450	(200)	
		4	Y18	5200	4	11b	52	200	2750	2150	(200)	
		4	Y16	4950	4	11c	52	200	2750	1900	(200)	
		4	Y16	4800	4	11d	52	200	2750	1740	(200)	
		4	Y16	4600	4	11e	52	200	2750	1580	(200)	
		4	Y16	4500	4	11f	52	200	2750	1450	(200)	
		4	Y16	4400	4	11g	52	200	2750	1350	(200)	
		4	Y16	4300	4	11h	52	200	2750	1250	(200)	
		4	Y16	4200	4	11i	52	200	2750	1180	(200)	
		4	Y16	4150	4	11j	52	200	2750	1120	(200)	
		4	Y16	4100	4	11k	52	200	2750	1080	(200)	
		4	Y16	4100	4	11l	52	200	2750	1050	(200)	
		4	Y16	4050	4	11m	52	200	2750	1020	(200)	
		4	Y16	4050	4	11n	52	200	2750	1000	(200)	
		4	Y20	4200	4	12a	52	250	1380	2450	(250)	
		4	Y20	3900	4	12b	52	250	1380	2150	(250)	
		4	Y20	3650	4	12c	52	250	1380	1920	(250)	
		4	Y20	3500	4	12d	52	250	1380	1740	(250)	
		4	Y20	3300	4	12e	52	250	1380	1580	(250)	
		4	Y20	3200	4	12f	52	250	1380	1450	(250)	
		4	Y20	3100	4	12g	52	250	1380	1350	(250)	
		4	Y20	2900	4	12h	52	250	1380	1250	(250)	
		4	Y20	2850	4	12i	52	250	1380	1220	(250)	
		4	Y20	2800	4	12j	52	250	1380	1180	(250)	
		4	Y20	2750	4	12k	52	250	1380	1150	(250)	
		4	Y20	2750	4	12l	52	250	1380	1120	(250)	
		4	Y20	2750	4	12m	52	250	1380	1100	(250)	
		4	Y16	5500	4	13a	52	200	2750	2450	(200)	
		4	Y16	5200	4	13b	52	200	2750	2150	(200)	
		4	Y16	4950	4	13c	52	200	2750	1900	(200)	
		4	Y16	4800	4	13d	52	200	2750	1740	(200)	
		4	Y16	4600	4	13e	52	200	2750	1580	(200)	
		4	Y16	4500	4	13f	52	200	2750	1450	(200)	
		4	Y16	4400	4	13g	52	200	2750	1350	(200)	
		4	Y16	4300	4	13h	52	200	2750	1250	(200)	
		4	Y16	4200	4	13i	52	200	2750	1180	(200)	
		4	Y16	4150	4	13j	52	200	2750	1120	(200)	
		4	Y16	4100	4	13k	52	200	2750	1080	(200)	
		4	Y16	4100	4	13l	52	200	2750	1050	(200)	
		4	Y16	4100	4	13m	52	200	2750	1050	(200)	
		4	Y16	4100	4	13n	52	200	2750	1050	(200)	
		4	Y16	4100	4	13o	52	200	2750	1050	(200)	
		4	Y16	4100	4	13p	52	200	2750	1050	(200)	
		4	Y16	4100	4	13q	52	200	2750	1050	(200)	
		4	Y16	4100	4	13r	52	200	2750	1050	(200)	
		4	Y16	4100	4	13s	52	200	2750	1050	(200)	
		4	Y16	4100	4	13t	52	200	2750	1050	(200)	
		4	Y16	4100	4	13u	52	200	2750	1050	(200)	
		4	Y16	4100	4	13v	52	200	2750	1050	(200)	
		4	Y16	4100	4	13w	52	200	2750	1050	(200)	
		4	Y16	4100	4	13x	52	200	2750	1050	(200)	
		4	Y16	4100	4	13y	52	200	2750	1050	(200)	
		4	Y16	4100	4	13z	52	200	2750	1050	(200)	
		4	Y16	4100	4	13aa	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ab	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ac	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ad	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ae	52	200	2750	1050	(200)	
		4	Y16	4100	4	13af	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ag	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ah	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ai	52	200	2750	1050	(200)	
		4	Y16	4100	4	13aj	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ak	52	200	2750	1050	(200)	
		4	Y16	4100	4	13al	52	200	2750	1050	(200)	
		4	Y16	4100	4	13am	52	200	2750	1050	(200)	
		4	Y16	4100	4	13an	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ao	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ap	52	200	2750	1050	(200)	
		4	Y16	4100	4	13aq	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ar	52	200	2750	1050	(200)	
		4	Y16	4100	4	13as	52	200	2750	1050	(200)	
		4	Y16	4100	4	13at	52	200	2750	1050	(200)	
		4	Y16	4100	4	13au	52	200	2750	1050	(200)	
		4	Y16	4100	4	13av	52	200	2750	1050	(200)	
		4	Y16	4100	4	13aw	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ax	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ay	52	200	2750	1050	(200)	
		4	Y16	4100	4	13az	52	200	2750	1050	(200)	
		4	Y16	4100	4	13ba	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bb	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bc	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bd	52	200	2750	1050	(200)	
		4	Y16	4100	4	13be	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bf	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bg	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bh	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bi	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bj	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bk	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bl	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bm	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bn	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bo	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bp	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bq	52	200	2750	1050	(200)	
		4	Y16	4100	4	13br	52	200	2750	1050	(200)	
		4	Y16	4100	4	13bs	52	200	2750	1050		



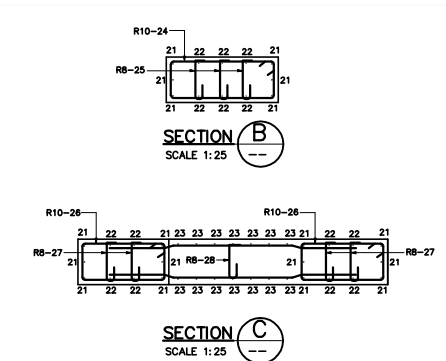
ELEVATION ON OUTLET HEAD WALL REINFORCEMENT
SCALE 1:50



HEADWALL STARTER BARS LAYOUT
SCALE 1:50



SECTION A
SCALE 1:50



SECTION B
SCALE 1:25

SECTION C
SCALE 1:25

MEMBER	No OF	BARS PER MEME	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G				
								A	B	C	D E/r	
HEADWALL REINFT	1	128	Y10	2350	128	01	85	600	760	380	76	(600)
		128	Y20	4050	128	02	35	3760				
		4	Y12	8900	4	03	34	8800				
		14	Y20	4550	14	05	38	9200				
		14	Y16	5750	14	06	38	300	1380	2950		
		10	Y20	3600	10	07	38	300	1380	2950		
		10	Y20	5000	10	08	38	300	2780	2000		
		10	Y20	2250	10	09	37	2000	(300)			
		11	Y16	4200	11	10	38	300	1380	1200		
		11	Y16	4200	11	11	38	300	2780	1200		
		6	Y20	2250	6	12	37	300	2000			
		4	Y16	1850	4	13	37	300	1600			
		6	Y20	4250	6	14a	52	250	2450	1380	(300)	
		6	Y20	3950	6	14b	52	250	2140	1380	(300)	
		6	Y20	3700	6	14c	52	250	1900	1380	(300)	
		6	Y20	3500	6	14d	52	250	1700	1380	(300)	
		6	Y20	3350	6	14e	52	250	1550	1380	(300)	
		6	Y20	3200	6	14f	52	250	1430	1380	(300)	
		6	Y20	3100	6	14g	52	250	1320	1380	(300)	
		6	Y20	3000	6	14h	52	250	1230	1380	(300)	
		6	Y20	2950	6	14i	52	250	1160	1380	(300)	
		6	Y20	2900	6	14j	52	250	1100	1380	(300)	
		6	Y20	2850	6	14k	52	250	1050	1380	(300)	
		6	Y20	2800	6	14l	52	250	1040	1380	(300)	
		6	Y20	2800	6	14m	52	250	1030	1380	(300)	
		6	Y16	5350	6	15a	52	250	2140	2780	(300)	
		6	Y16	5650	6	15b	52	250	2450	2780	(300)	
		6	Y16	4900	6	15c	52	250	1700	2780	(300)	
		6	Y16	4750	6	15e	52	250	1550	2780	(300)	
		6	Y16	4650	6	15f	52	250	1430	2780	(300)	
		6	Y16	4550	6	15g	52	250	1320	2780	(300)	
		6	Y16	4450	6	15h	52	250	1230	2780	(300)	
		6	Y16	4400	6	15i	52	250	1160	2780	(300)	
		6	Y16	4300	6	15j	52	250	1100	2780	(300)	
		6	Y16	4300	6	15k	52	250	1060	2780	(300)	
		6	Y16	4250	6	15l	52	250	1040	2780	(300)	
		6	Y16	4250	6	15m	52	250	1030	2780	(300)	
		50	Y10	1400	50	16	38	600	300	300	(300)	
		24	Y12	1250	24	17b	42	800	100	430	30	
		24	Y12	1100	24	17c	42	600	100	640	30	
		24	Y12	1700	24	17d	42	800	100	900	30	
		24	Y12	2050	24	17e	42	600	100	1240	30	
		24	Y12	2550	24	17f	42	600	100	1760	30	
		32	Y12	3600	32	18	41	2900	100	(600)	30	
		16	Y12	3300	16	19	42	600	100	2500	30	

MEMBER	No OF	BARS PER MEME	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G				
								A	B	C	D E/r	
HEADWALL REINFT	1	112	Y12	2600	112	20	43	600	100	1200	30	(600)
		36	Y20	6800	36	21	41	5280	200	1100	30	(600)
		26	Y16	6400	26	22	41	5280	200	(900)	40	
		28	Y12	9200	28	23	34	5500				
		28	R10	2750	28	24	60	910				
		84	R8	650	84	25	85	100			80	(150)
		140	R10	2700	140	26	60	900			80	(150)
		280	R8	650	280	27	85	100			80	(150)
		10	R8	650	10	28	85	100			80	(150)
		6	Y12	4350	6	29a	38	2000	380	2000		
		6	Y12	3750	6	29b	38	1700	380	1700		
		6	Y12	3350	6	29c	38	1500	380	1500		
		6	Y12	2950	6	29d	38	1300	380	1300		
		6	Y12	2650	6	29e	38	1150	380	1150		
		6	Y12	2350	6	29f	38	1000	380	1000		
		6	Y12	1950	6	29g	38	800	380	(800)		
		6	Y12	1850	6	29h	38	750	380	(750)		
		8	Y20	7750	8	32	34	7600				
		8	Y16	6150	8	33	34	6000				
		48	Y12	6800	48	34	34	6700				
		129	Y10	3700	129	35	60	1400			380	
		264	R8	600	264	36	35	380			300	
		8	Y12	1800	8	37	43	550			250	(150)
		48	Y10	4500	48	38	20	(4500)				
		120	Y12	9150	120	39	20	(9150)				

CONCRETE NOTES:

- CONCRETE TO BE GRADE 35/19. MIX DESIGNS FOR CONCRETE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONCRETE WORK
- FINISHING:
2.1 SMOOTH FINISH TO ALL SHUTTERED SIDES.
2.2 WOODFLOAT TO TOPS OF WALLS AND SLABS.
2.3 25x25mm CORNER FILLETS TO ALL EXPOSED EDGES.
- TOLERANCES TO BE IN ACCORDANCE WITH SABS 1200G CLASS 1.
- COVER TO REINFORCEMENT: AS INDICATED.
- CURING OF ALL CONCRETE SURFACES TO BE DONE USING SAMSON'S WAX BASED WHITE PIGMENTED CURING COMPOUND.
- ALL WORK TO BE CARRIED OUT IN CONFORMANCE WITH THE RELEVANT SABS 1200 SPECIFICATIONS.
- ALL CONCRETE IS TO BE PROPERLY VIBRATED. HEAVING OF CONCRETE TO BE AVOIDED. CASTING OF CONCRETE MUST BE CONTINUOUS.
- ALL WORK TO BE CHECKED BY SUPERVISING ENGINEER PRIOR TO POURING OF CONCRETE (MINIMUM 24 HOURS NOTICE)
- AN ALLOWABLE FOUNDATION BEARING PRESSURE OF 300KPa ON COMPETENT SOIL IS REQUIRED. REMOVE AND REPLACE IN SITU MATERIAL AS REQUIRED.
- ALL DIMENSIONS TO BE CONFIRMED ON SITE.
- ALL STRUCTURES SHALL BE CONSTRUCTED ON A SUB-FOUNDATION CARPET OF 15MPa/19mm BLINDING CONCRETE, NOT LESS THAN 75mm THICK.

COVER TO REINFORCEMENT:

BASE	70mm
WALLS INSIDE	50mm
WALLS OUTSIDE	70mm
SLAB	50mm

REINFORCEMENT
(To: SANS 920-1969 with amendments)
R - Plain mild steel bars (Type A)
($f_y=250$ MPa ϕ 20 mm and $f_y=230$ MPa ϕ 25 mm)
Y - High yield steel
(Type C : Class 2 ; Grade 1 : $f_y=450$ MPa)
Where: f_y - Yield stress

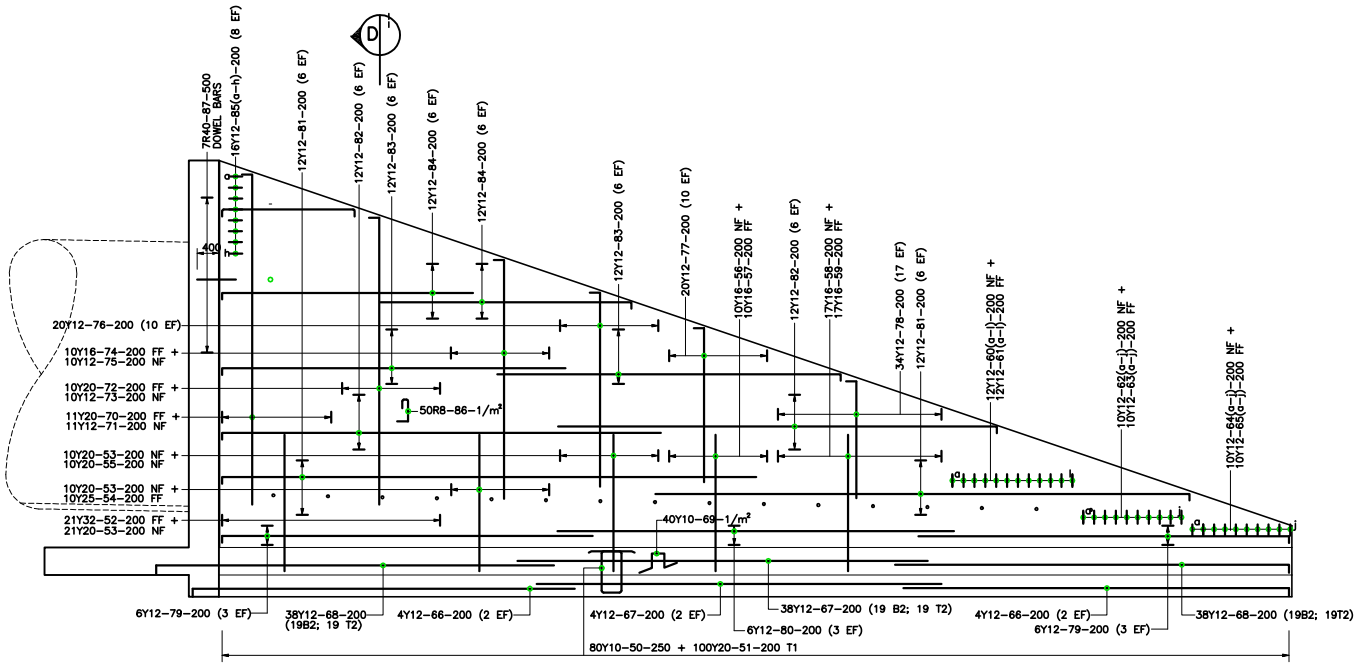
EXAMPLE
20Y25-01-150 T2
20 - Bars
Y - High yield steel
25 - Diameter in mm
01 - Bar mark number
150 - Spacing c/c in mm
T2 - Location

NF - Near face T - Top
FF - Far face B - Bottom
EF - Each face CTL - Cut to length
CTF - Cut to fit EW - Each way
ABR - Alternative bars reversed
ALT - Alternately

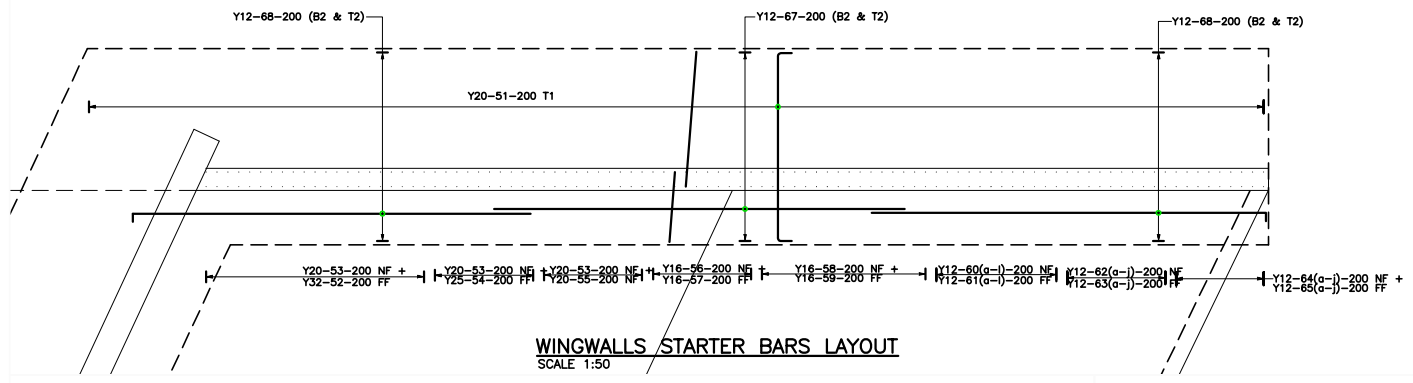
Stool

Cover as specified

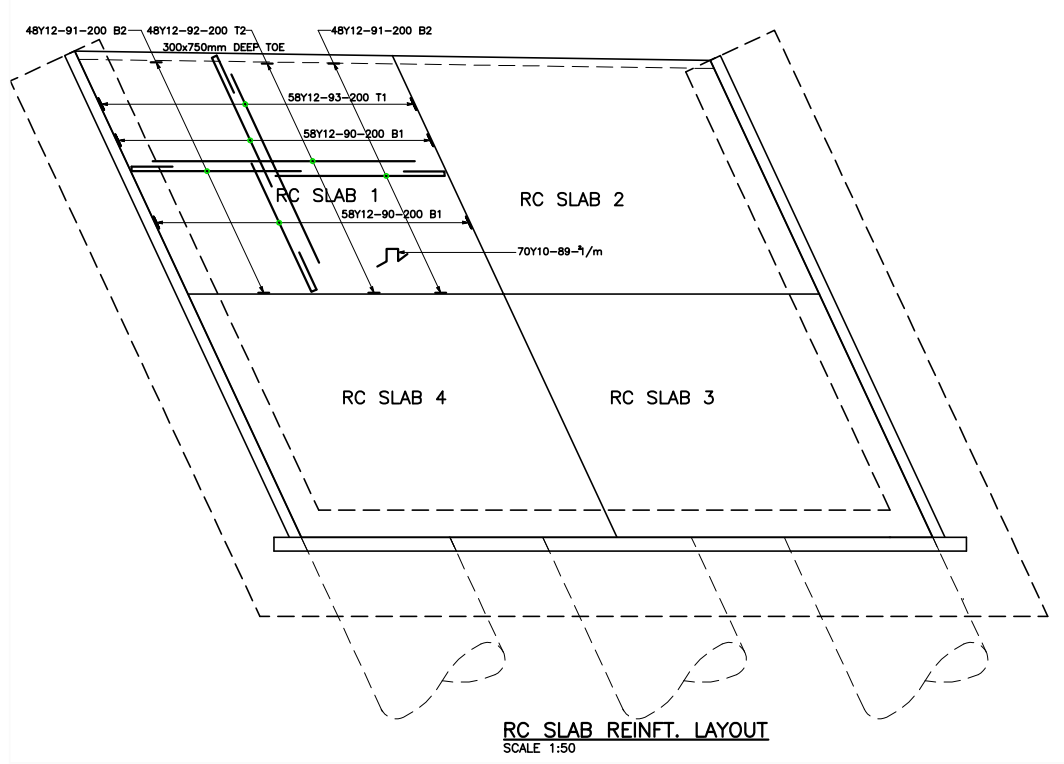
DATE	20/04/10	BY	WJ	CHKD	WJ	DATE	20/04/10	
SCALE	AS SHOWN	PROJECT	KUSILE POWER STATION	NO.	0.90/5718	REV	1	
KUSILE POWER STATION ASH DUMP ACCESS EMBANKMENT CULVERT: OUTLET REINF. SCHEDULES AND DETAILS SHEET 1							REV	1
DRG. No. K 5406-088							REV	1
Eskom							REV	1



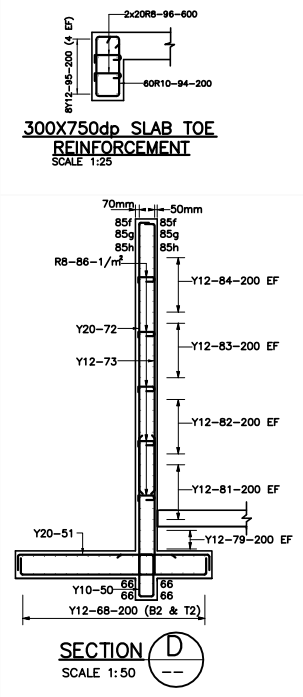
ELEVATION ON WINGWALL REINFORCEMENT(2No. OFF)
SCALE 1:50



WINGWALLS STARTER BARS LAYOUT
SCALE 1:50



RC SLAB REINFT. LAYOUT
SCALE 1:50



300X750dp SLAB TOE REINFORCEMENT
SCALE 1:25

SECTION D
SCALE 1:50

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G					
								A	B	C	D	E/r	
WINGWALL REINFT.	2	80	Y10	2900	160	50	85	600	760	280	760	(600)	
		100	Y20	3750	200	11	35	3460					
		21	Y32	3950	42	32	38	2500	1280	(300)			
		4	Y20	5200	20	24	36	2500	2480	(300)			
		10	Y25	3950	20	24	36	2500	1280	(300)			
		10	Y20	4000	20	24	36	2500	1280	(300)			
		Y16	5200	20	24	36	36	2500	2480	(300)			
		Y16	4000	20	24	36	36	2500	1280	(300)			
		17	Y16	5200	20	24	36	2500	2480	(300)			
		17	Y16	4000	20	24	36	2500	1280	(300)			
		Y12	5900	30	60	62	300	2890	2480	(300)			
		Y12	5900	30	60	62	300	2900	2480	(300)			
		Y12	5750	30	60	62	300	2750	2480	(300)			
		Y12	5700	30	60	62	300	2680	2480	(300)			
		Y12	5600	30	60	62	300	2600	2480	(300)			
		Y12	5550	30	60	62	300	2550	2480	(300)			
		Y12	5500	30	60	62	300	2480	2480	(300)			
		Y12	5400	30	60	62	300	2400	2480	(300)			
		Y12	5350	30	60	62	300	2340	2480	(300)			
		Y12	5250	30	60	62	300	2270	2480	(300)			
		Y12	5200	30	60	62	300	2200	2480	(300)			
		Y12	5150	30	60	62	300	2140	2480	(300)			
		Y12	4700	30	60	62	300	2890	1280	(300)			
		Y12	4600	30	60	62	300	2800	1280	(300)			
		Y12	4550	30	60	62	300	2750	1280	(300)			
		Y12	4500	30	60	62	300	2680	1280	(300)			
		Y12	4400	30	60	62	300	2600	1280	(300)			
		Y12	4350	30	60	62	300	2550	1280	(300)			
		Y12	4300	30	60	62	300	2480	1280	(300)			
		Y12	4200	30	60	62	300	2400	1280	(300)			
		Y12	4150	30	60	62	300	2340	1280	(300)			
		Y12	4050	30	60	62	300	2270	1280	(300)			
		Y12	4000	30	60	62	300	2200	1280	(300)			
		Y12	3950	30	60	62	300	2140	1280	(300)			
		Y12	5050	60	62	62	300	2070	2480	(300)			
		Y12	5000	60	62	62	300	2000	2480	(300)			
		Y12	4950	60	62	62	300	1930	2480	(300)			
		Y12	4850	60	62	62	300	1870	2480	(300)			
		Y12	4800	60	62	62	300	1800	2480	(300)			
		Y12	4750	60	62	62	300	1750	2480	(300)			
		Y12	4650	60	62	62	300	1680	2480	(300)			
		Y12	4600	60	62	62	300	1600	2480	(300)			
		Y12	4500	60	62	62	300	1520	2480	(300)			
		Y12	4450	60	62	62	300	1450	2480	(300)			

8	10	12	16	20	25	32	40	TOT	Date	15/04/2010
R									Det. by	V.M.
Y	286	294	784	3098	304	1047		5814	Ref Dwg	K5406-089
TOT	286	294	784	3098	304	1047		5814	Job No	K5406

OUTLET STRUCTURE WING WALL
Revision 1
Schedule No B

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G				
								A	B	C	D	E/r
WINGWALL REINFT.	2	1	Y12	3850	2	63g	52	300	2070	1280	(300)	
		1	Y12	3800	2	63g	52	300	2000	1280	(300)	
		1	Y12	3750	2	63c	52	300	1930	1280	(300)	
		1	Y12	3700	2	63d	52	300	1870	1280	(300)	
		1	Y12	3600	2	63e	52	300	1800	1280	(300)	
		1	Y12	3550	2	63f	52	300	1730	1280	(300)	
		1	Y12	3500	2	63g	52	300	1660	1280	(300)	
		1	Y12	3400	2	63h	52	300	1600	1280	(300)	
		1	Y12	3300	2	63i	52	300	1520	1280	(300)	
		1	Y12	3200	2	63j	52	300	1450	1280	(300)	
		1	Y12	4400	2	64a	52	300	1390	2480	(300)	
		1	Y12	4300	2	64b	52	300	1320	2480	(300)	
		1	Y12	3900	2	64c	52	300	900	2480	(300)	
		1	Y12	3750	2	64d	52	300	850	2480	(300)	
		1	Y12	3700	2	64e	52	300	770	2480	(300)	
		1	Y12	3200	2	65a	52	300	1390	1280	(300)	
		1	Y12	2900	2	65b	52	300	1120	1280	(300)	
		1	Y12	2850	2	65c	52	300	1050	1280	(300)	
		1	Y12	2800	2	65d	52	300	980	1280	(300)	
		1	Y12	2700	2	65e	52	300	900	1280	(300)	
		1	Y12	2650	2	65f	52	300	850	1280	(300)	
		1	Y12	2550	2	65g	52	300	770	1280	(300)	
		1	Y12	2500	2	65h	52	300	700	1280	(300)	
		8	Y12	7100	16	66	34	7000				
		42	Y12	7500	84	67	20	7500				
		76	Y12	7600	152	68	34	7500				
		40	Y10	1450	80	69	83	500				
		11	Y20	6200	22	70	34	6050				
		11	Y12	6150	22	71	34	6050				
		10	Y20	5450	20	72	34	5300				
		10	Y12	5400	20	73	34	5300				
		10	Y16	4550	20	74	34	4400				
		10	Y12	4500	20	75	34	4400				
		20	Y12	3700	40	76	34	3500				
		20	Y12	2900	40	77	34	2800				
		34	Y12	2300	68	78	34	2200				
		12	Y12	6900	24	79	34	6800				
		6	Y12	7300	12	80	20	(7300)				

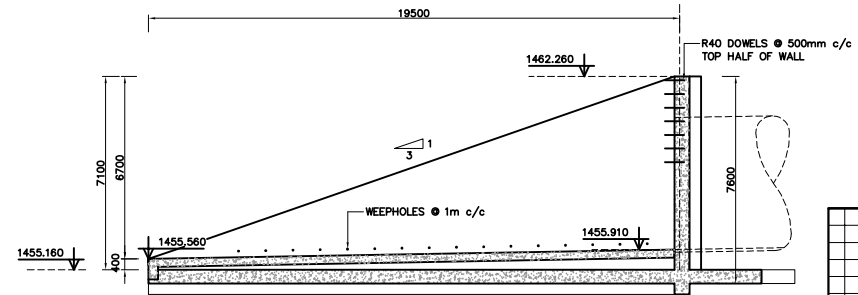
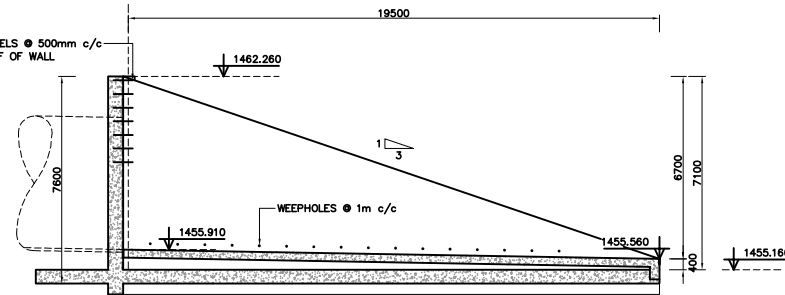
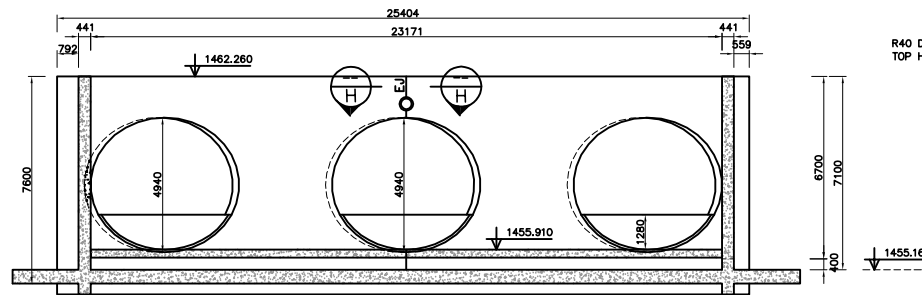
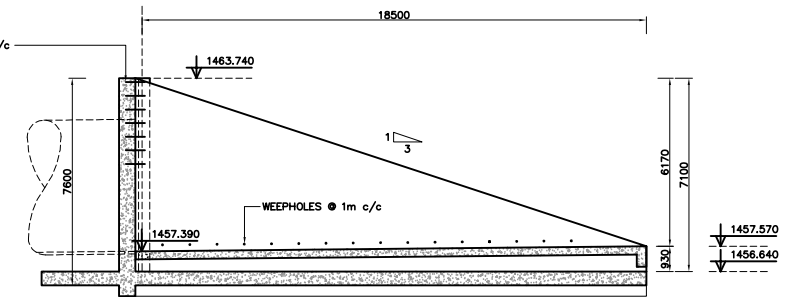
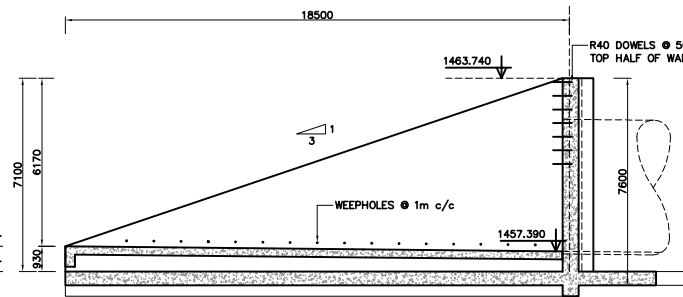
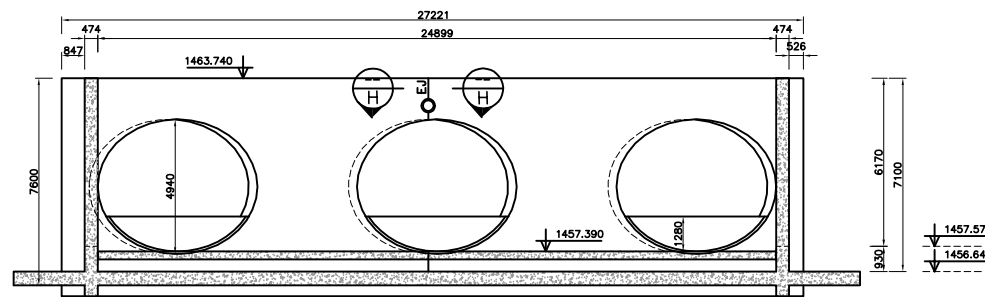
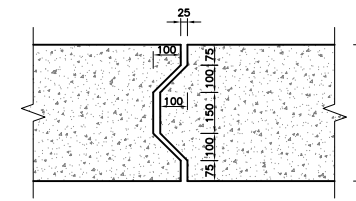
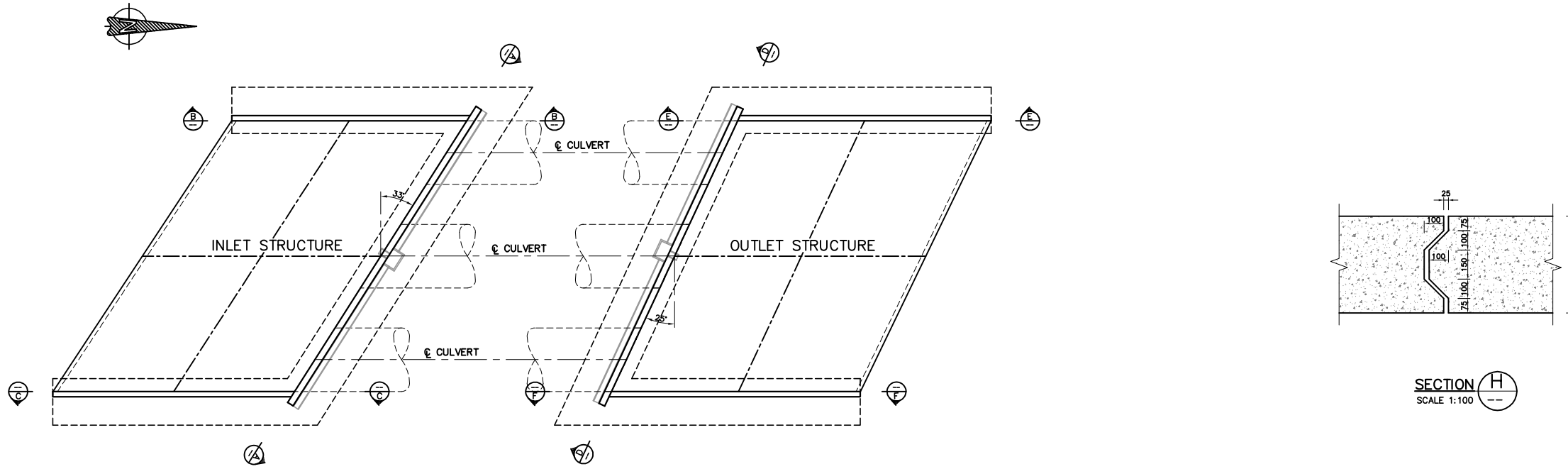
8	10	12	16	20	25	32	40	TOT	Date	15/04/2010
R									Det. by	V.M.
Y	72	2767	144	605				3587	Ref Dwg	K5406-089
TOT	72	2767	144	605				3587	Job No	K5406

OUTLET STRUCTURE WING WALL
Revision 1
Schedule No B

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G				
								A	B	C	D	E/r
WINGWALL REINFT.	2	24	Y12	9800	48	81	34	9800				
		24	Y12	1150	48	82	34	8050				
		24	Y12	6400	48	83	34	6300				
		24	Y12	4700	48	84	34	4600				
		2	Y12	8500	4	85g	35	8500				
		2	Y12	1450	4	85b	35	1250				
		2	Y12	2050	4	85c	35	1840				
		2	Y12	2650	4	85d	35	2400				
		2	Y12	3200	4	85e	35	3000				
		2	Y12	3800	4	85f	35	3600				
		2	Y12	4400	4	85g	35	4200				
		2	Y12	5000	4	85h	35	4800				
		55										

CONCRETE NOTES:

- CONCRETE TO BE GRADE 35/19. MIX DESIGNS FOR CONCRETE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONCRETE WORK.
- FINISHING:
 - SMOOTH FINISH TO ALL SHUTTERED SIDES.
 - WOODFLOAT TO TOPS OF WALLS AND SLABS.
 - 25x25mm CORNER FILLETS TO ALL EXPOSED EDGES.
- TOLERANCES TO BE IN ACCORDANCE WITH SANS 1200G CLASS 1.
- COVER TO REINFORCEMENT: AS INDICATED.
- CURING OF ALL CONCRETE SURFACES TO BE DONE USING SAMSON'S WAX BASED WHITE PIGMENTED CURING COMPOUND.
- ALL WORK TO BE CARRIED OUT IN CONFORMANCE WITH THE RELEVANT SABS 1200 SPECIFICATIONS.
- ALL CONCRETE IS TO BE PROPERLY VIBRATED. HEAVING OF CONCRETE TO BE AVOIDED. CASTING OF CONCRETE MUST BE CONTINUOUS.
- ALL WORK TO BE CHECKED BY SUPERVISING ENGINEER PRIOR TO POURING OF CONCRETE (MINIMUM 24 HOURS NOTICE).
- AN ALLOWABLE FOUNDATION BEARING PRESSURE OF 300kPa ON COMPETENT SOIL IS REQUIRED. REMOVE AND REPLACE IN SITU MATERIAL AS REQUIRED.
- ALL DIMENSIONS TO BE CONFIRMED ON SITE.
- ALL STRUCTURES SHALL BE CONSTRUCTED ON A SUB-FOUNDATION CARPET OF 15MPa/19mm BLINDING CONCRETE, NOT LESS THAN 50mm THICK.



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DESIGN	APPROVED	DATE
BY	BY	28/04/10
CHKD	BY	
APP'D	BY	
DATE	DATE	

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