

Kylie Flood

From: Administration Requests
Sent: Monday, 16 December 2019 5:08 p.m.
To: [REDACTED]
Cc: Administration Requests
Subject: FW: Norfolk Drive - Stormwater - Catchment 9
Attachments: Woodward- Opus proposal Quail Way SW 16122019.pdf

Hi Mike

Thank you for your request for Quail Way stormwater information. I have attached a report undertaken by Opus that might be useful. Our Infrastructure Strategy might also be helpful. This looks at all stormwater drainage and is available on our website, link below

<https://www.kaipara.govt.nz/uploads/documents/i/Infrastructure%20Strategy%202018-2048%20Adopted.pdf>

Regards Linda



Linda Osborne | Administration Manager
Kaipara District Council, Private Bag 1001, Dargaville 0340
Freephone: 0800 727 059 | 09 439 3123
council@kaipara.govt.nz | www.kaipara.govt.nz

From: Council
Sent: Wednesday, 11 December 2019 1:50 PM
To: Administration Requests <administrationrequests@kaipara.govt.nz>
Subject: FW: Norfolk Drive - Stormwater - Catchment 9

Kia ora

This LGOIMA request has been received in the Council inbox and forwarded to you for action and reply. Customer has been advised response is due 30th January 2020.

Ngā mihi

Customer Services



Adrienne Dodge | Kaitiaki Kiritaki | Customer Services
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Opening Hours: Monday, Tuesday, Thursday, Friday 8am to 4.30pm and Wednesday 9am to 4.30pm



Kaipara District Council Christmas Hours 2019

Dargaville and Mangawhai offices
close 12pm on Tuesday 24 December 2019
and re-open Monday 6 January 2020 at 8am

To report a fault or seek urgent attention from Council
please call our 24-hour free phone number 0800 727 059
For Dog, Stock and Noise Control complaints 0800 105 890

*Wishing a Merry Christmas to all residents and visitors to the
Kaipara District and safe driving on our roads.*



-----Original Message-----

From: Mike Woodward [REDACTED]

Sent: Wednesday, 4 December 2019 2:15:20 PM

To: Council

Subject: Norfolk Drive - Stormwater - Catchment 9

Hello,

Please can I get a copy of the stormwater report for Quail Way?

(re the new 900mm and 1200mm SW pipes constructed on Quail and Breve).

(It relates to Catchment 9, the balance of which discharges through my property Lot 1 DP 445582).

Thanks, Mike W

From: [David Buttenshaw](#)
Sent: Monday, December 02, 2019 12:31 PM
To: [Mike Woodward](#) ; [Matthew Smith](#)
Subject: RE: LiDAR for around Norfolk Drive - Stormwater

Hi Mike

For a request for service please go through Customer Service either at the office or by email council@kaipara.govt.nz or alternatively you can make a LGOIMA request through <https://www.kaipara.govt.nz/contact-us/official-information-request>

Kind regards

David Buttenshaw



David Buttenshaw | Stormwater Engineer

BSc MEnvMan

Kaipara District Council, Private Bag 1001, Dargaville 0340

Freephone: 0800 727 059

dbuttenshaw@kaipara.govt.nz | council@kaipara.govt.nz | www.kaipara.govt.nz



From: Mike Woodward [REDACTED]
Sent: Monday, December 2, 2019 11:49 AM
To: David Buttenshaw <dbuttenshaw@kaipara.govt.nz>; Matthew Smith <msmith@kaipara.govt.nz>
Subject: Re: LiDAR for around Norfolk Drive - Stormwater

Hi David and Matt,

Please could you email the stormwater report for Quail Way?

(re the new 900mm and 1200mm SW pipes constructed).

Thanks, Mike Woodward

From: [David Buttenshaw](#)

Sent: Wednesday, February 27, 2019 1:02 PM

To: [Mike Woodward](#) ; [Matthew Smith](#)

Subject: RE: LiDAR for around Norfolk Drive - Stormwater

Hi Mike

No, KDC has not done any flood modeling in Mangawhai.

The best we have access to at the moment is the NRC Coastal Flood Hazard map:

<https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=81b958563a2c40ec89f2f60efc99b13b>

Kind regards

David Buttenshaw



David Buttenshaw | Stormwater Engineer

BSc MEnvMan

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From: Mike Woodward [REDACTED]

Sent: Tuesday, 26 February 2019 2:16 PM

To: David Buttenshaw <dbuttenshaw@kaipara.govt.nz>; Matthew Smith <msmith@kaipara.govt.nz>

Subject: Fw: LiDAR for around Norfolk Drive - Stormwater

Hi David,

fyi ; LiDAR link is below.

I'm getting quote from another engineer as John Rowland may be away. We have the LiDAR now from NRC.

Question from engineer is:

"Council should have done flood modeling, did you check to see if they can provide the results?"

Is there any?

Thanks, Mike Woodward



From: [Rebecca Norman](#)

Sent: Wednesday, February 20, 2019 3:32 PM

To: [REDACTED]

Cc: [Janelle Palmer](#)

Subject: Re: LiDAR for around Norfolk Drive

Hello Mike

I have uploaded the data you requested to our FTP area - please find attached the link to access, and download the data.

<ftp://ftp2.nrc.govt.nz/dropbox/Mike%20Woodward%20-%20LiDAR%20Data/>

Username and password are both 'dropbox'.

To save, you will need to download the documents/files. Drag the relevant documents/files to the relevant drive *or* right click on document(s) > Copy to folder ...

Let me know how you go with downloading these.

Once you have a copy, let me know so I can remove them from our FTP area.

Please note that this data is provided under the following licensing:

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Ngā mihi

Rebecca Norman

GIS Officer

Northland Regional Council » Te Kaunihera ā rohe o Te Taitokerau



P 0800 002 004 » **W** www.nrc.govt.nz



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<KDC Council thoughts on Catchment Size picture.png>

<Rainfall for Mangawhai page 59.pdf>



KDC - Quail Way Stormwater Improvements: Investigation and Catchment Analysis Report

11 September, 2017



Contact Details

Name: Bob Szrot

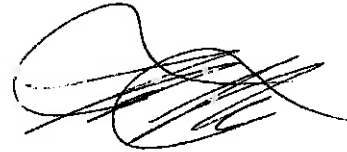
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Document Details:

Date: 11 September 2017
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Prepared by:



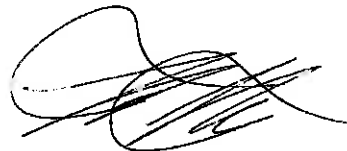
Bob Szrot | Water & Wastewater Work Group Manager

Reviewed by:



Eros Foschieri | Team Leader Water & Wastewater

Approved for Release by:



Bob Szrot | Water & Wastewater Work Group Manager

Contents

1. Part One - General	4
1.1. Introduction	4
1.2. Summary of Reviewed Documents	4
1.3. Assumptions.....	4
2. Part Two – Investigation and Analysis	5
3. Part Three – Risk Analysis	6
4. Part Four – Analysis of Potential Devices and Systems	7
4.1. Catchment Collection	7
4.2. Stormwater Cleaning.....	7
4.3. Energy Dissipation	8
4.4. Recreational Amenities	8
5. Part Five – Summary	9

1. Part One - General

1.1. Introduction

This first deliverable for the Quail Way Stormwater Improvements projects consists of a report summarizing the investigation, analysis, calculations and risk analysis.

This report has been compiled from a review of the existing exhibits and reports provided by KDC as part of the tendering package as well as further examination of the Draft Mangawhai Stormwater Plan of 22 June 2005.

Items reviewed include (but not limited to):

- Harrison Grierson Forest Park Development Letter of December 1994
- Wiley Geotechnical Penetrometer Reports of June 2016
- MWH Estuary Drive Stormwater Improvement Options Report of December 2015
- Duffill Watts & King KDC Draft Stormwater Management Plan 2005 – Sheets 31 & 32
- Wiley Geotechnical Percolation Tests for Stormwater Infiltration Viability at Quail Way of June 2017
- Staff provided Rain Garden / Soakage Pit exhibit
- Staff provided exhibit of R.L.s based on MSL of May 2017

We have examined the various report suggestions and presentation and summarize them as follows.

1.2. Summary of Reviewed Documents

The primary areas of concern within the scope of this report are identified as KDC Catchment Plan – Areas: 9A – Pohutukawa area, and 9B – Quail Way Area (see Stormwater Sheets 12, 13, & 14 following)

The general consensus of previous reports is that Catchment 9 is a rapidly developing urban catchment of 52ha bounded by Molesworth Drive to the west and Moir Point Road to the east. The areas of flooding within the scope of this report will be Catchment 9A - Pohutukawa of approximately 2ha; and Catchment 9B - Quail Way of approximately 5ha.

Other areas of Catchment 9 have had stormwater addressed previously. This report will concentrate on areas 9A and 9B exclusively.

Continued development of Catchment 9 has resulting in increased stormwater runoff into the natural depressions with the intent that sandy soils will allow infiltration as the method to remove standing stormwater. These depressions, however, are also being developed, which are leading to reduced soakage into sand and a reduced tolerance of localized flooding.

Past reports for providing drainage improvements along Quail Way all suggest that soakage devices or areas for the removal of stormwater will be of limited value as most area soils are now a mixture of sand, peat, and imported soils. Runoff velocity is also increasing as roofs, roads, and parking areas are installed.

As we examine the topography of this area, we find that catchment 9A and 9B are low points between hills and ridges to the north and south and stormwater flows will need to drain either eastwardly or westerly in the absence of any on-site soakage options (see Figure 1).

1.3. Assumptions

We are assuming that the desire would be to minimize or eliminate westward flowing stormwater towards Molesworth Drive. While previous reports all anticipated discharging stormwater towards Molesworth Drive, we believe that this area is already significantly developed and any additional stormwater flows would become unwelcomed and problematic.

We are also assuming that soakage as the total solution for this area's stormwater discharge will not provide a sustainable solution for the future.

We are also assuming that discharge will be accepted into the Breve Road Reserves as a joint benefit to improve reserve recreational amenities. In the absence of this assumption, discharge to any waterway or estuary will be the preferred second choice.



ADJOINING SHEET 11

ADJOINING SHEET 10

ADJOINING SHEET 13

ADJOINING SHEET 14

No.	Revision	Date	Appvd
R1	VARIOUS AMENDMENTS		

Scale	1:2500	Checked	Date
Surveyed			
Designed	M.W.		1-05
Drawn	D PRESTON		2-05
Approved	PR WALDRON		
File		Ref.	

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Client



Kaipara DISTRICT
Kaipara to Orakeiwai • The Ocean • The Harbour

Project

**MANGAWHAI
CATCHMENT MANAGEMENT PLAN**

DRAFT

Job No.	20129	Sheet No.	12
Drawing No.	2105	Phase	Revision
			R1



No.	Revision	Date	Appr'd
R1	VARIOUS AMENDMENTS		

Scale	1:2500	Checked		Date	
Designed	M.W.			1-05	
Drawn	B. PRESTON			2-05	
Approved	PR WALDRON				
File		Ref.			

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Project: **MANGAWHAI CATCHMENT MANAGEMENT PLAN**
DRAFT

Job No.	20129	Sheet No.	13
Drawing No.	2105	Phase	
		Revision	R1



No.	Revision	Date	Appr.
R1	VARIOUS AMENDMENTS		

Scale:	1:2500	Checked	Date
Surveyed			
Designed	M.Y.		1-05
Drawn	B PRESTON		2-05
Approved	PR WALDRON		
File		Ref.	

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Project: **MANGAWHAI CATCHMENT MANAGEMENT PLAN**

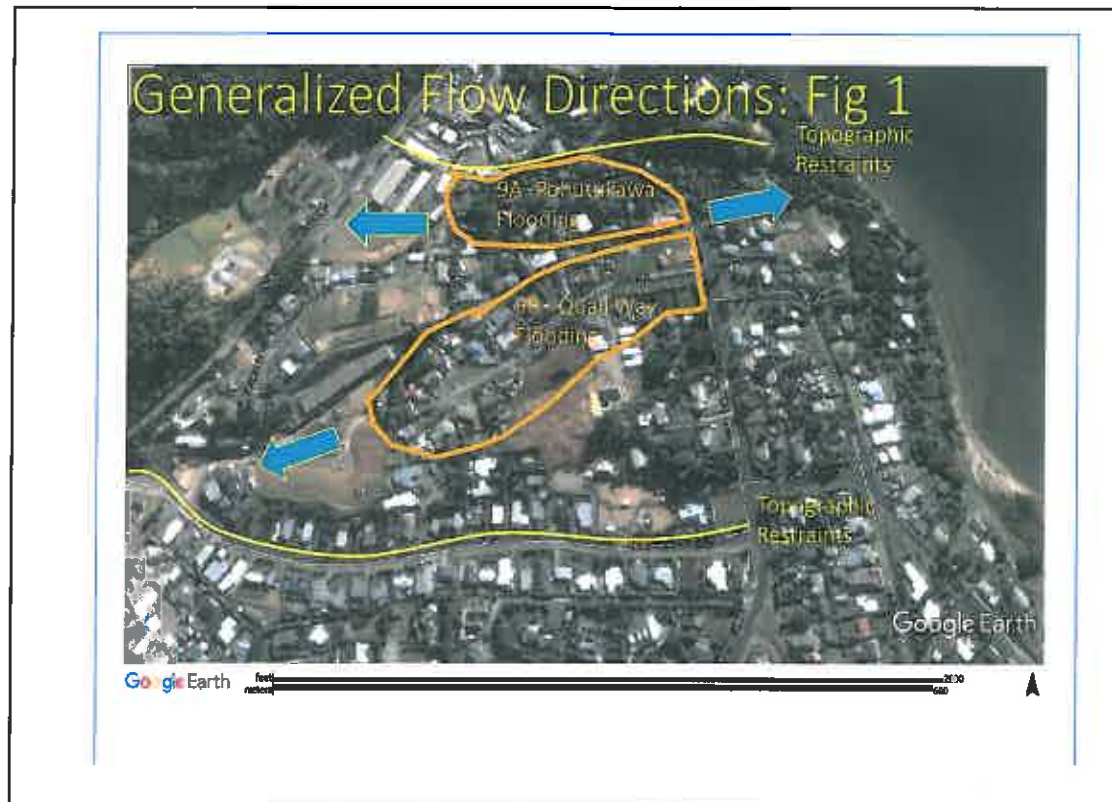
DRAFT

Job No.	20129	Sheet No.	14
Drawing No.	2105	Phase	Revision
			R1

2. Part Two – Investigation and Analysis

This investigation for preliminary analysis, has been achieved with a site visit, including walking through the reserve to the waterway; review of the material presented with the tender pack; and a topographic analysis of catchment area 9.

We have accepted the northern and southern topographic boundaries, with Sea breeze Road as the southernmost extent; Molesworth Drive as the western/north-western limit; and Moir Point Road as the eastern/north-eastern boundary.



We note that any stormwater flows out of catchment 9A or B will need to flow eastward or westward, either by overland surface flows or by subterranean piping. With industry, museums, commercial establishments and Parklands clustered along Molesworth, the eastern discharge of the area's stormwater seems the most feasible and most direct.

Two issues arise with the easterly flow concept: resource consenting to discharge directly into a waterway – as trash and debris will need to be removed from any storm flows; secondly, will be erosion prevention through the reserve to enhance rather than deter this beautiful area.

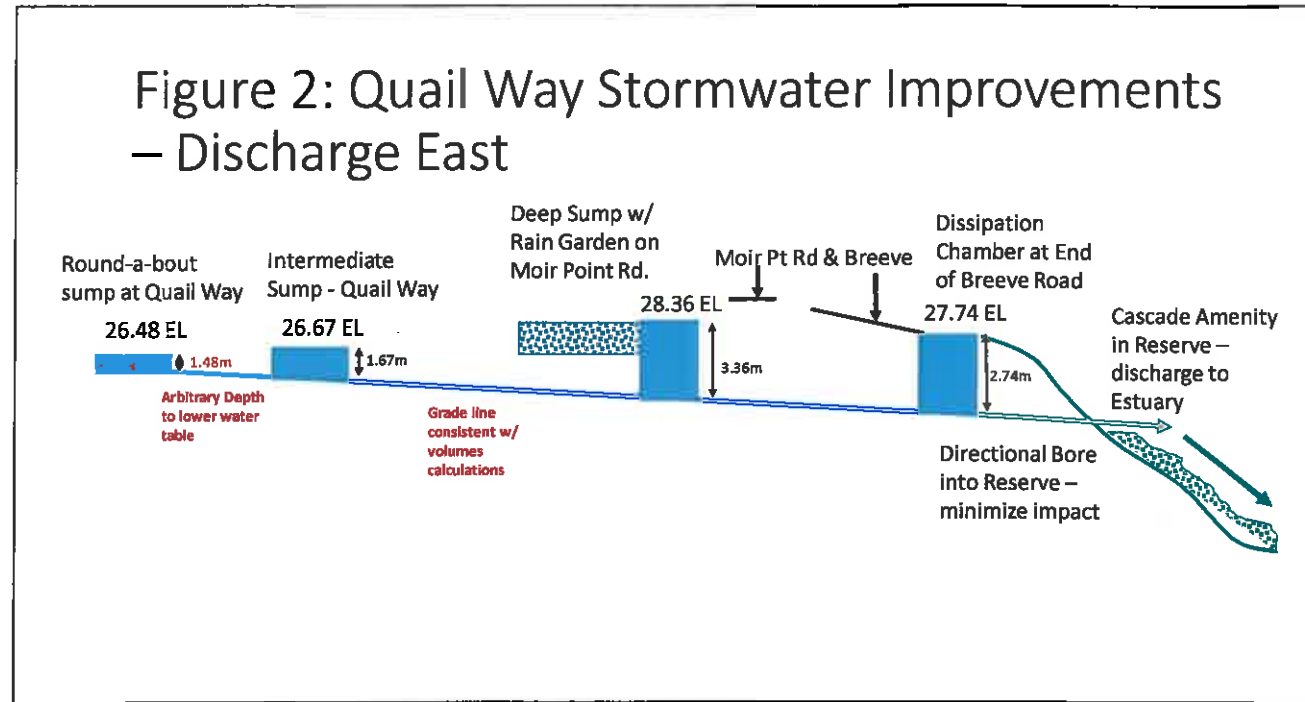
This project already has a phase to address resource consenting. Erosion protection will be a discussion as to what type and extent of amenity is desired, and related to cost. The erosion protection will have inherent in its design, velocity dissipation as a primary concern.

We anticipate that this flow path through the reserve will flow year-round as groundwater from the catchments will continue to be removed. The benefit of this is to use the catchment itself as a storage buffer – whereby the groundwater elevation that is currently held in the soil matrix will be lowered, creating a bathtub of sorts to store initial stormwater flows. Discussion about the extent of this lowering will come under detailed design.

We find that continued development exacerbates the ability to discharge overland in this area as each day continued construction raises and fills the areas under development. We believe that using "soak pits" has a place within this design – but more as collectors discharging to a main collection line rather than a solution unto themselves.

The number of collection pits, their locations and sizing, and debris removal chambers will flesh out under detailed design.

A visualization of this concept is shown below in Figure 2.



Detailed design will examine in more depth the amount and specific location / level of catchment waters and determine the pipe sizing and number of inlets to address existing standing water and greater stormwater volumes.

Another examination will look at the Pohutukawa stormwater situation and discussions will occur to see if KDC wants to tie in this area (9A) into the eastward discharge system.

There is also an opportunity for an additional amenity at the intersection of Moir Point Road and Breeve Road. KDC concepts originally planned for an expanded holding pond. This pond could be designed to allow a broader amenity use as a neighbourhood gathering spot with a nautical theme. We will discuss this option prior to detailed design.

3. Part Three – Risk Analysis

The main risks when addressing stormwater are volumes and velocities. Stormwater systems need to address the worst case flows for assumed 100 year storm events under KDC Standards, and then examine risk should these events be exceeded.

The primary challenge to catchment 9A and 9B is continued development whereby runoff from roofs and roadways increases velocities as more areas are smoothed out and made impermeable. We will revisit the area prior to detailed design to assess the most current developed areas and discuss in our Design Options Reporting Stage the anticipated final buildout of these catchment areas.

General risk will be minimal as adjoining areas have been developed and stormwater flows addressed; catchments 9A and 9B are not situated along and flow through watercourses; and the seven hectare area is not all that significant.

At present existing homes are affected by rising waters during storm events. Any solution will improve this situation and reduce risk.

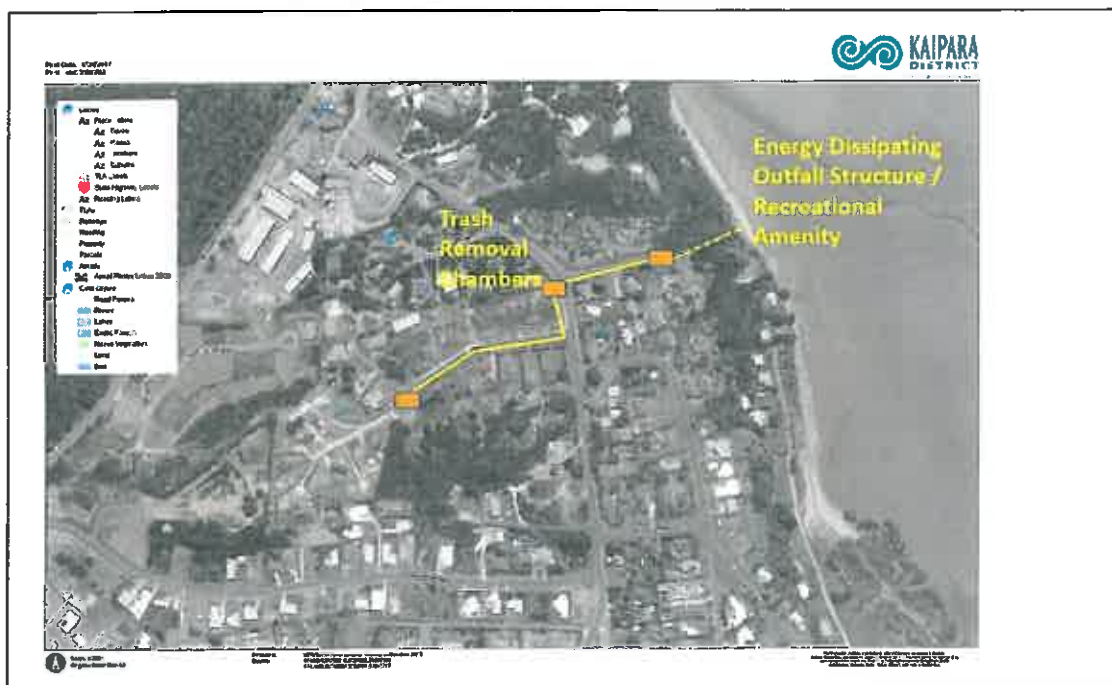
4. Part Four – Analysis of Potential Devices and Systems

4.1. Catchment Collection

Catchment collection will be accomplished by a series of drop inlets and soak pit sumps all piped to a common collector line within road reserve. This will accomplish a lowering of the existing water table in the area. This lowering will allow the existing catchment to act as a buffer as insitu soils will no longer be at the saturation state.

Drop inlets will allow water gathering on the road to runoff quickly into sumps and flow through underground pipes to discharge into the reserve area.

Discussions will also occur as to the desire to add additional features to allow for catchment of surface flows during catastrophic events as detailed design will examine volumes and velocities.



Amenity design at Moir Point Road and Breeve will also be discussed and conceptualized.

4.2. Stormwater Cleaning

With discharge through a reserve and into the tidal area, we believe that several levels of debris removal will be desired.



There are several designs commercially available that will clean debris from stormwater flows.

They can be located within pipes or chambers. Emphases will be on the easiest maintenance design and value for cost.

Amenity features can also be designed for debris removal – in many cases allowing captured debris to be readily visible and easily removed.

We anticipate that a more in-depth presentation will occur in the detailed design

as well as the consenting stage as regulators will want assurances that the system will not degrade the receiving waterway.

4.3. Energy Dissipation

As the anticipated discharge will occur through the Breeve Street reserve, stormwater will need to flow overland down to the tidal area. Energy dissipation will be required to prevent erosion and contain catastrophic volumes and velocities.



A dissipation “chute” will allow varied flows to be received and higher energy volumes dissipated as well as constrained to prevent erosion.

Construction methodology will need to be considered to minimize impact to the reserve – only occurring within the chute area and materials deployed from the top downward.

The chute can be straight or curved, and sidewalls determined by expected volumes of flows.

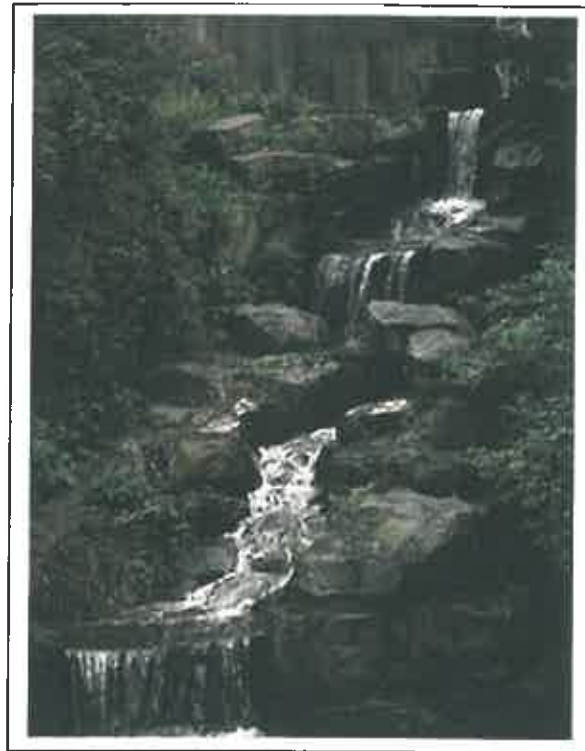
Materials can be a system of secured gabion baskets or poured in place reinforced concrete. This method will create an open vertical space that might impact on the reserve’s aesthetics.

A more natural solution would be to construct a cast in place rock façade. Here you have moulds that are filled with reinforced cast in place concrete to create a waterfall effect.

This method accomplishes a designed velocity mitigation as extreme storm events will expand within a predictable “overflow” area – all within the cast structure.

A third concept is to incorporate black flexible PPE pipe the lays on the surface or is minimally covered. This method would not provide any amenity value, but would allow a quicker and less costly discharge to be accomplished.

Additional storage / retention might be required as a piping system will restrict and meter extreme flows to discharge.



4.4. Recreational Amenities

Preliminary discussions also focussed on improvements to the reserve as part of this project – allowing more value for money across both stormwater mitigation and parklands.

Presently there is a crude pathway down to the tidal area, supported by random vertical placed boards held in place with wood staking.

These steps could be improved during the installation of any of the discharge solutions allowing greater access to this reserve and shoreline to a wider range of residents and physical conditions.



Step improvements could range from installation of a formal step system, incorporation of steps within the chute or cast waterfall solution, or introduce several "mini-bridges" on top of the structures to secure a PPE piping system.

This discussion will be resolved in depth during the Options Assessment Stage.

There are several possible solutions that will achieve an effective stormwater discharge system through the reserve. We anticipate participation in these discussions by the reserves managers.

5. Part Five – Summary

The purpose of this report is to serve as a starting point for discussions during the Design Options Stage.

We will determine during discussions with KDC staff the desired level of service they would like to see with the stormwater improvements. This will look at the lowering of the catchment water table; location and selection of inlets and soak pits; intermediate storage and collection ponds and chambers; debris removal options; and finally discharge choices.

Running parallel to these discussions will be amenity development – both along Moir Point Road and within the Breeve Street Reserve.

The primary stormwater collection areas are all located within public right-of-way and are easily accessible.

Discussions to select an eastward discharge flow path will need concurrence and any potential consenting issues presented.

Decisions on the discharge option of choice will also need resolution.

Once these options are resolved, preliminary and detailed design will be able to provide costings for the possible selected options.



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6. Part Six – Methodology

This section includes, but is not limited to, the following as relevant to the carrying out the provision of Professional Services laid out in this document. We have included comments on each of the items listed and on other issues considered relevant:

We have described the procedures we propose to use on the package of work scheduled in the Schedule of Prices, to demonstrate that the services will be carried out and completed in accordance with the tender document documents.

The focus of this assignment is to provide Kaipara District Council with efficient engineering design and construction services to address the stormwater issues in the Quail Way area. Also for consideration is the ability for any system designed to accommodate and address additional stormwater flows from the Pohutukawa area (and potentially other areas).

The attached reports and information provided with the tender presents the challenges of Catchment 9. This low lying area is rapidly being surrounded by development that is limiting potential options that could successfully drain this area.

Original proposed solutions of soaking type remedies have identified themselves as only temporary. We will be looking at a more efficient and effective way to address stormwater removal that will allow a pre-emptive lowering of the water table, efficient and effective conveyance, storage chambers that filter and clean debris, and potential future connections – all with an unlimited estuary outfall.

We have reviewed the presented options and preferred course of action and based on the information available in the RFP and the KDC Intrapap GIS system online, we have identified several effective options.

Exclusions

- Archaeological investigations
- HAZOP
- Geotechnical testing and site investigation (Provisional)
- Assessment of Kaipara District Council's wider stormwater network
- Economic analysis of options (OPEX/CAPEX)
- Specific design for the relocation/protection of existing services
- Land owner/Stakeholder liaison

Client Provided Information

The following information will be requested from KDC:

- Kaipara District Council property boundaries and service information in GIS format
- Kaipara District Council Aerial photos.
- Relevant tendered rates to build the Engineers estimate

6.1. Quail Way Stormwater Improvement

6.1.1. Preliminary & General

Under this item, we are allowing for all preliminary and general items required to carry out the complete works requirements. We will set up a formal project in our internal database – Vision. This will evolve to developing a project Work Breakdown Structure (WBS) to schedule and assigning team members to specific hours, actions, and price schedule items for managerial tracking and cost control.

We will hold an internal kick-off meeting to assign duties, actions, and deliverable time frames.

The WBS will flow into developing a detailed programme, including meetings (on site, at KDC offices, Mangawhai (or Dargaville), start up meeting, alignment confirmation meetings, progress meetings).

6.1.2. *Preliminary Design Options*

We will hold a site visit to assure we understand the issues on site. We invite the Client along as we will brainstorm about the best course of action, site challenges, possible options, any cost savings, the neighbourhood, traffic, any safety items of concern. All of this is documented in site visit minutes.

We understand that you value efficiency and effectiveness and are open to cost savings and better options.

We will next hold a Client kick-off meeting to assure we are starting off in a direction that the clients feels is the best course of action. We will discuss what we have observed during our preliminary site visit, listen to any information you want to add – or ideas and thoughts that could benefit the project.

We will discuss opportunities to future-proof any rehabilitation, increasing pipe size, or upsize chambers. This meeting will examine what you feel best addresses present and future needs of the community.

6.1.3. *Complete Detailed Design*

With background system exhibits and knowledge, real-time updates from site visits, and harvesting Council staff knowledge; we are now in the position to efficiently develop a detailed design for the project.

Detailed designs will include potential options, specific industry standard element details, and specific surveyed measurements laid out over a background aerial to better understand where each element is located.

6.1.4. *Drawings*

The completed detailed design will evidence themselves with our providing a complete set of detailed drawings.

We will accomplish a KDC pre-tender issue review meeting where council staff will have the opportunity to edit the detailed design if any fatal flaws are noted.

We will then finalise the detailed design into 'Issued for Tender' drawings and 'Issued for Construction' drawings for the tender package and contract documents.

6.1.5. *Detailed Engineering Estimates*

Running parallel to the detailed design process will be the development of a detailed Engineers Estimates for the project. Here you will have a listing of all anticipated elements for the project.

An internal quality assurance process by senior staff will assure that both detailed design and cost estimates are well grounded in industry practices and methods to be the most efficient and effective – saving time, costs, and avoiding variations.

6.1.6. *Detailed and Complete Sets of Tender Documents*

We will provide one complete set of tender documents that includes detailed sets of specifications as needed.

6.1.7. *Tender Process*

As part of the tendering process we understand that your time is valuable and therefore we are strategically pricing for our Team to field tender queries and preparing and issuing of responses.

Our Team is intimately aware of the site conditions and the project needs, as we have developed the detailed design and detailed cost estimates; it make sense to have tender inquiries go directly to the source of the tender knowledge.

If there is a specific area of the tender process that KDC staff wish to oversee, we will develop a system to facilitate this; otherwise, you will be able to sit back and allow us to address the numerous inquiries associated with the tendering process.

6.1.8. *Tender Evaluation Reports*

We anticipate using a Price Quality methodology for tender evaluations, however we are open for any Council request.

Tenderers provide their detailed responses to listed attributes and these attributes are scored and weighted based on their importance to the project.

These elements, such as methodology, experience, track record, and more are the basis of this tender, so are familiar to KDC.

We will join with KDC, if desired, to develop the formal review and scoring of the respective tenders and present these results in table format with a recommendation of the lowest priced conforming tenderer.

A detailed tender analysis and report will allow KDC decision makers the ability to weigh any alternatives or attributes as these will be clearly presented in the evaluation report.

6.1.9. *Chief Executive and/or Council Reports*

If needed, we will also provide a more targeted format of the detailed tender analysis and reporting documents (in Opus or KDC format) for formal presentation to your Chief Executive or Council.

We also stand ready to attend Executive sessions or Council meetings to present such findings. We have estimated this item as one visit, but can attend more meetings on an hourly rate as required.

6.1.10. *Contract Administration and Construction Monitoring for the Contract (Provisional Sum)*

As part of the legal requirements involved in the tendering process and the application of these elements on the day-to-day basis of contract administration, we are available to administer, manage, and monitor the project.

Prior to the start of construction, contractors are required to submit and have in place agreed procedures and reports that address:

- Quality Planning and Control
- Environmental Management
- Safety Management
- Recording and Reporting
- Insurances / Liabilities
- Variation Management
- Final deliverables / Testing / Commissioning

These submittals will be reviewed for their sufficiency and accuracy prior to any work being accomplished on any project site.

During the accomplishment of the physical works, we will accomplish site visit as relevant, assure flow of billings and Contract Administration, be available for information or process inquiries by the contractor, and accomplish any scheduled or unscheduled Construction Monitoring.

6.2. **Health, Safety, and Hazards**

6.2.1. *Hazards Identified by the Principal*

At Opus we formalize our Safety Culture through continued utilization of:

- Safety Policies, Procedures, and Guidelines
- Template and Checklist Resources
- Hazardous Reporting Programs and Risk Registers
- Contractor Management – SiteWise
- Clear Roles and Responsibilities
- Health and Wellbeing programs – both on and off duty

We are formally trained and certified in Traffic Management, Confined Spaces, Working at Heights, Working in Trenches, Hot Works. We also have a culture of continuous learning and improvement through periodic web based refresher courses – recent ones include:

2017

- Reminder to PMs & PDs on Contractor Management - Jul 2017
- New H&S Manual - May 2017
- Vehicle Speed Infringement Process - May 2017
- Updated Project Site Safety Plan - Apr 2017
- AED Guideline Update - Mar 2017
- Meth Guidelines - Feb 2017
- Test and Tag Procedure - Feb 2017
- Back to School Reminder - Jan 2017
- Contaminated Land Guideline - Jan 2017

2016

- Contractor Prequalification - Jan 2016
- Height Guideline - 2015
- Shake Out - Oct 2015
- Generic Risk Registers - Aug 2016
- Notifiable Event - Nov 2016
- Sun Smart - Nov 2016

We acknowledge and take note of the Hazards Identified by the Principal and assure that we will refresh these topics as a first order of business:

- Confined space entry
- Traffic
- Steep slopes
- Slips, trips and falls;
- Dogs
- Overhead electricity

We also acknowledge that it is the Consultants' duty to identify, list, assess, control and make known to all staff who attend to site visits all hazards relevant to the site being visited. We accomplish this through a formal site sign-in process and mandatory orientation.

6.2.2. Health and Safety in Design

Opus is committed to Health and Safety in Design also. We have as a standard operating procedure, the accomplishment of a comprehensive Project Site Safety Plan (PSSP). This plan formally incorporates the following documents to assure each project is accomplished within a culture of safety:

- ✓ Opus Requirements and Documents
 - *Project Site Safety Plan – PF-HS-301*
 - *Risk Analysis Matrix*
 - *Assessment Form Site Survey Inspections PF-HS-102*
 - *Hierarchy of Controls PF-HS-102*
 - *Acknowledgement of Hazards/Risks and Controls – sign in sheet*
 - *SiteWise Certification*
 - *Construct Safe Certification and ID Cards*
 - *ACC Workplace Safety Management Practices*
 - *NRC Pre-contract Health and Safety Questionnaire*
- ✓ Contractor Supplied Documents

- *SiteWise Certification*
- *Contractor Health and Safety Hazard Register – Work Log Book*
- *Contractor Health and Safety Plan*

- ✓ **Contractor Induction**
 - *Contractor Induction Checklist – PF-HS-303*

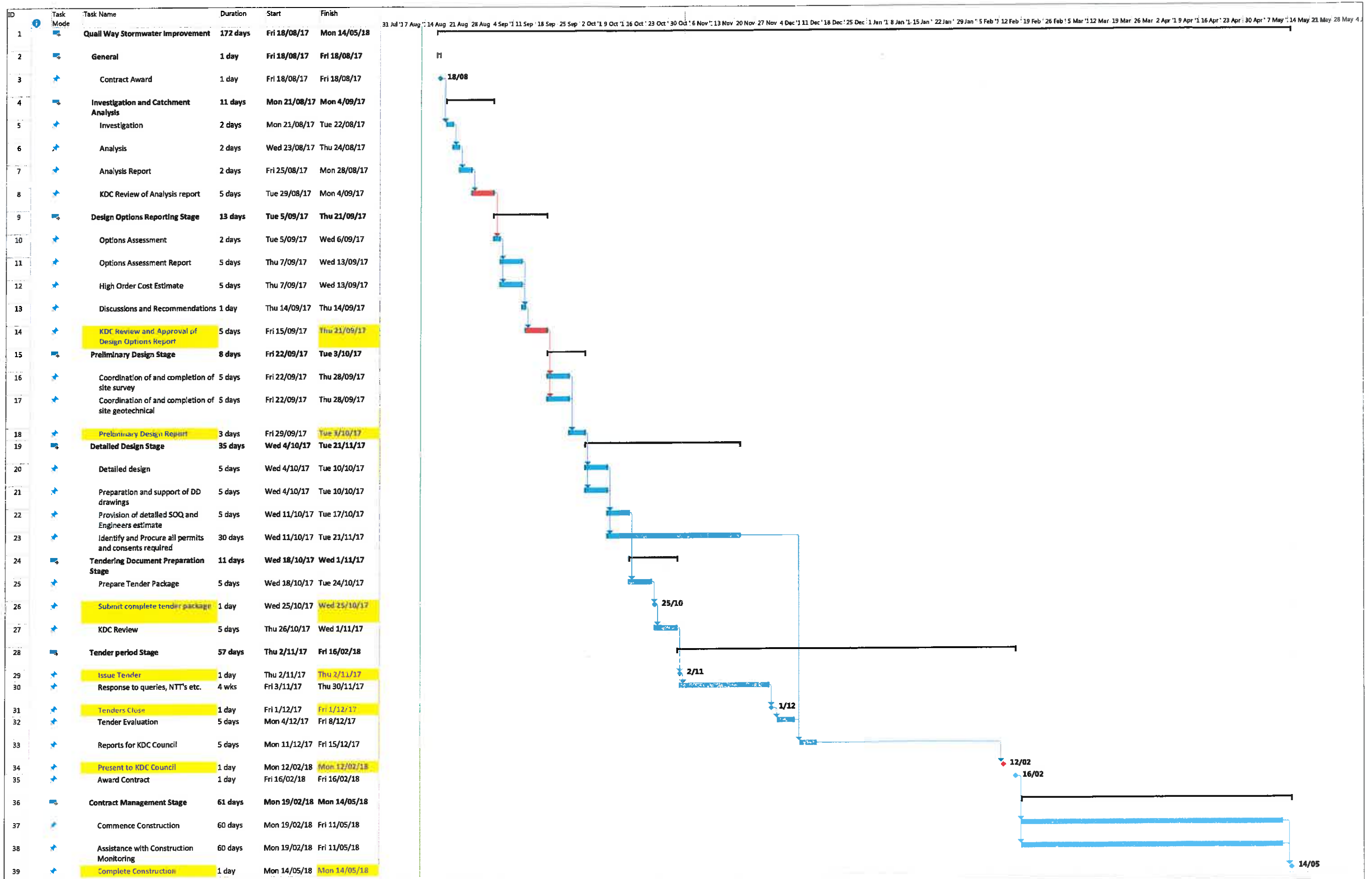
- ✓ **Project Safety Plan Audit**
 - *Whangarei PSSP Internal Audit Tool – PF-HS-323*
 - *Safe Behaviour Observation – Mobile Phone App for real-time reporting*

For site visits and during construction monitoring all personnel entering the site will have to sign into the site after receiving a safety orientation briefing. Worksites will be delineated with fencing and/or other warning devices to assure the safety of the general public.

Our health and safety procedures include a formal Assessment Form Site Survey Inspections (PF-HS-102) to identify the risk of each element and whether it can be eliminated, substituted, or isolated.

6.3. Programme of Work

Our proposed programme of works in Appendix B, provides a task list summary which should clearly show project understanding, and the level of effort planned on each part of the project.



Project: KDC Quail Way Stormw
Date: Sun 13/08/17

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress	

